

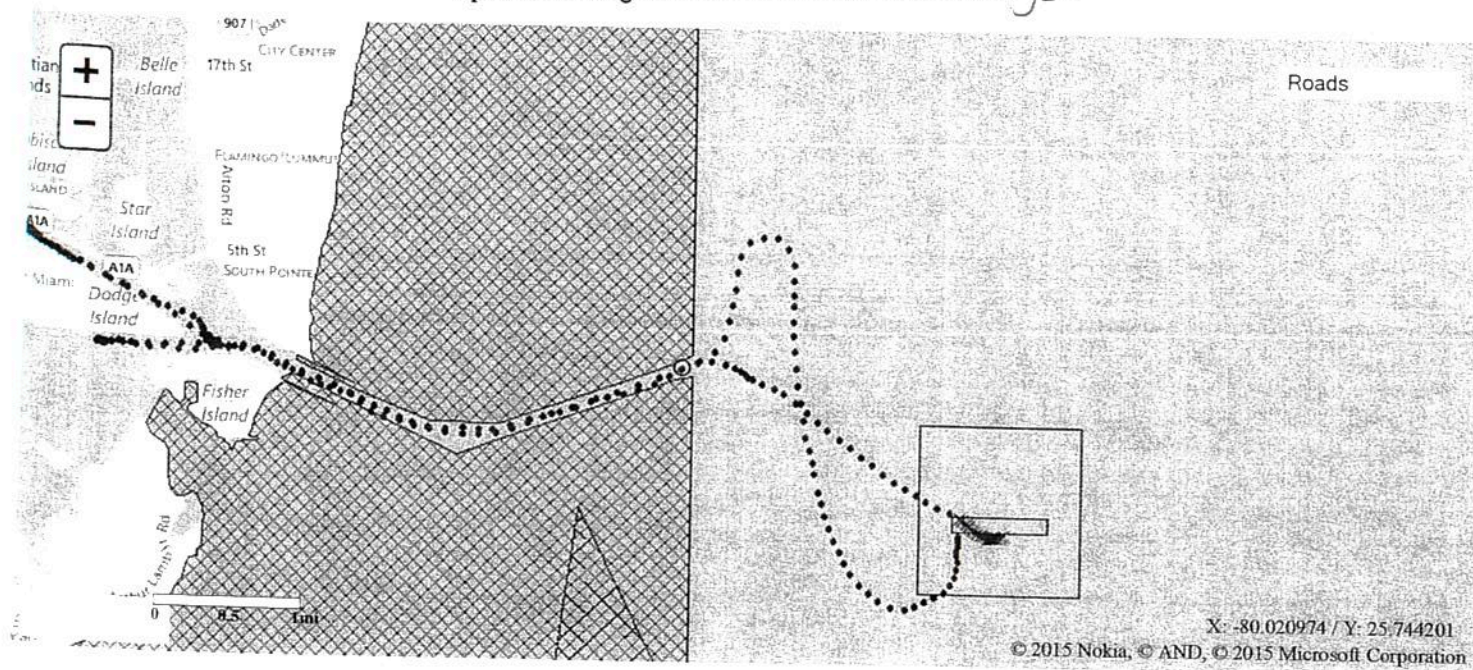
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[Log Out](#)

Select an ODMDS: Miami

Specific Privilege: Deliberative Process Privilege

[Tools](#)



Select Details

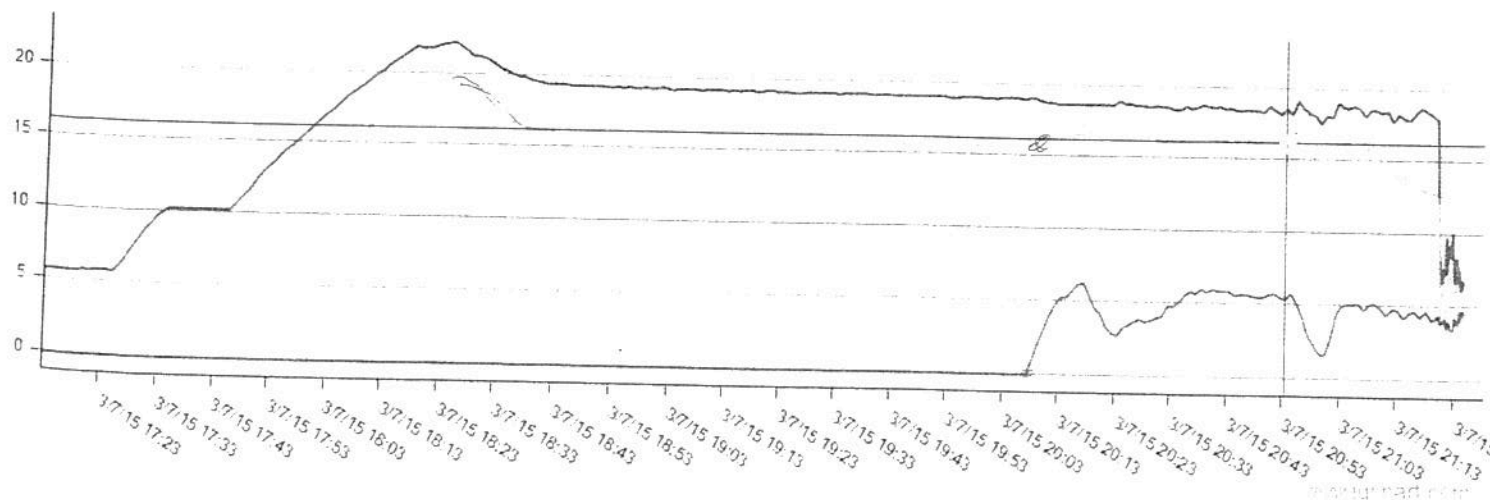
Viewing trip 1 of 1 (Trip 621)

Trip Information

Project: 2013 Miami Ha Deepening Proj
Contract: W912EP-13-C-
Trip #: 621
Tow Vessel: Unknown
Captain(s): Unknown
Vessel: GL 66
Technique: Bottom Dump
Volume: 3733
Mat Source: Fisherman's Ch
Mat Desc: Sand and Rock
Comments:

Placement Information (Local Tin

Alarm Information



Local Time: 3/7/2015 8:53:22

Latitude: 25.763997

Longitude: -80.09078

Field: Fore Draft

Value: 16.19

$$\begin{aligned}
\frac{1}{2} \frac{d}{dt} \int_{\mathbb{R}^n} |u|^2 dx &= \int_{\mathbb{R}^n} u \frac{du}{dt} dx \\
&= \int_{\mathbb{R}^n} u \left(-\operatorname{div} (u \nabla u) \right) dx \\
&= - \int_{\mathbb{R}^n} \operatorname{div} (u^2 \nabla u) dx \\
&= 0
\end{aligned}$$



DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
P.O. BOX 4970
JACKSONVILLE, FLORIDA 32232-0019

REPLY TO
ATTENTION OF

Planning and Policy Division
Environmental Branch

FEB 04 2015

Mr. Giattina,

Thank you for your recent letter regarding the dredged material management practices and associated concurrence pursuant to Section 103 of the Marine Protection Research and Sanctuaries Act (MPRSA). The U.S. Army Corps of Engineers (Corps) understands that the Environmental Protection Agency (EPA) has granted a 6-month conditional concurrence for the ocean disposal of Miami Harbor Deepening dredged material which will be valid through June 19, 2015. During this time, both agencies are evaluating whether the compliance issues have been addressed and whether additional conditions are necessary for further extension of the concurrence. The Corps and the contractor, Great Lakes Dredge & Dock Company, LLC (GLDD), take non-compliance concerns seriously and have daily communications regarding ocean disposal issues. The compliance concerns include misplaced materials, leakage from disposal vessels, and leaving disposal doors open following departure from the Offshore Dredged Material Disposal Site (ODMDS). The Corps' perspective regarding the compliance concerns are discussed below.

Misplaced Materials: There were two instances where the Dredging Quality Management (DQM) tracking indicates that disposal of material was initiated outside of the release zone, but within the boundaries of the ODMDS in March of 2014. Situations such as these are characterized as "misdumps" per the contract specifications for this project which have been coordinated with your office. All tug boat captains responsible for disposal actions at the ODMDS went through additional environmental and procedural training to address performance deficiencies and certain captains were subsequently removed from the project by GLDD. There have not been any other non-compliance events regarding misplaced materials. The Corps believes GLDD appropriately handled misplacement and that the incidents were isolated events that have been remedied.

Monitoring for Excessive Leakage (>1 foot): As previously coordinated, the Corps is tracking all incidents and requires detailed explanations from the contractor for every event where draft loss is recorded in excess of one foot. The attached spreadsheet is an updated version from the one transmitted to your office in November of 2014 and contains all instances of draft loss from scows recorded in excess of one foot while in transit to the ODMDS from the dredging area. Monitoring for this requirement begins at the end of the dredging area, or buoy G-1. During evaluation of project compliance, it became apparent that the Corps' definition of excessive leakage varied among dredging projects throughout the South Atlantic Division of the Corps. The Jacksonville District office, in coordination and cooperation with your office, developed a conservative notification threshold for the Miami Deepening Construction project

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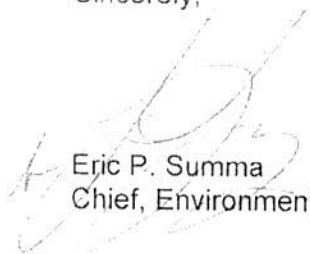
for transits demonstrating draft loss in excess of 1 foot. Such incidents also trigger review of additional load specific information, weather conditions, and disposal logs for potential issues. The contractor has taken a multitude of actions to address the draft loss incidents, and the Corps has requested the contractor provide a more detailed compilation of such measures in our January 30, 2015, letter to GLDD also attached for reference, and a response is expected by February 11, 2015. Currently no overflow occurs when filling the scows with material, and as a result these scows have an increased quantity of water. The Contractor implemented this measure as a result of observed sediment deposition on adjacent resources suspected to be from fine grained materials remaining in dredge slurry suspension and being subsequently overflowed during scow loading. The reduction in overflow is an adaptive management technique implemented to protect the environment during dredging operations and minimize the fine grained sediment from disbursement outside of the dredging area. The increase in water per scow load has led to many of the draft loss incidents reported. As a result, the contractor has taken additional measures including; removing scows from service and inspecting scow seals, diver checks of the scows' seals, closing skimmer valves during transit, modifying skimmer heights, changing tug-scow combinations, transiting during minimal traffic interference, holding scows until offshore weather conditions improve, replacing seals, and adding newer scows to the project. Our continued goal is to share all relevant information with your office and our Engineer Research and Development Center (ERDC) so that we might collectively examine the occurrences and corrective measures implemented to gain a better understanding of the issues and perhaps offer improved practices which minimize leakage.

The Site Management and Monitoring Plan (SMMP) requires the user to notify EPA within 24 hours of a potential draft loss in excess of one foot. Our contract specifications require notification from the contractor within 12 hours to ensure a timely turnaround by the Corps to EPA. We have had multiple discussions with the contractor regarding this requirement and their unsatisfactory performance to date. We have every expectation that timeliness will be improved.

Disposal Doors Open After Leaving ODMDS: As you are aware, our contract specifications require that all contractors close hull doors prior to leaving the ODMDS boundaries. This requirement stems from various safety and environmental protection measures. Through careful examination of the contractors operations during this project, we have found that the monitoring equipment has indicated non-compliance with this contract specification 33 times 36 out of the approximate 2,958 loads since the project began. Although examination of each incident shows no potential environmental impact from misplacement of material outside the boundaries of the release zone, compliance is essential. As communicated by the contractor, many of these incidents are a result of operator error, hydraulic failure, mechanical issues, and/or computer signaling issues with remote closure devices. As with all incidents, detailed explanations are provided in the updated tracking spreadsheet. During hydraulic or mechanical failures, a remote close feature referred to as "Emergency Close" or "E-Dump" is initiated. Remote closure of hull doors is observed to be working, but does not allow for full pressurization of hull doors to the 3,000psi to 5,000psi, which as a result does not signal a "closure". DQM tracking of such events therefore indicates the hull doors remain open upon exiting the ODMDS. The Corps has requested further assessment of past incidents which also correlate with E-Dumps and future tagging of such instances.

Our goal on this project continues to be compliance with all contract and permit requirements and all applicable laws and regulations, in particular those related to environmental protection. We intend to continue to examine all relevant information in coordination with your office and continue to work closely with the contractor to ensure improved performance and contract compliance.

Sincerely,



Eric P. Summa
Chief, Environmental Branch

Enclosure



DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
P.O. BOX 4970
JACKSONVILLE, FLORIDA 32232-0019

REPLY TO
ATTENTION OF

Planning and Policy Division
Environmental Branch

FEB 05 2015

Mr. Thomas McGill
Acting Chief, Wetlands, Coastal and Oceans Branch
U.S. Environmental Protection Agency
Atlanta Federal Center
61 Forsyth Street
Atlanta, GA 30303

Mr. McGill,

Thank you for your recent letter regarding the dredged material management practices and associated concurrence pursuant to Section 103 of the Marine Protection Research and Sanctuaries Act (MPRSA). The U.S. Army Corps of Engineers (Corps) understands that the Environmental Protection Agency (EPA) has granted a 6-month conditional concurrence for the ocean disposal of Miami Harbor Deepening dredged material which will be valid through June 19, 2015. During this time, both agencies are evaluating whether the compliance issues have been addressed and whether additional conditions are necessary for further extension of the concurrence. The Corps and the contractor, Great Lakes Dredge & Dock Company, LLC (GLDD), take non-compliance concerns seriously and have daily communications regarding ocean disposal issues. The compliance concerns include misplaced materials, leakage from disposal vessels, and leaving disposal doors open following departure from the Offshore Dredged Material Disposal Site (ODMDS). The Corps' perspective regarding the compliance concerns are discussed below.

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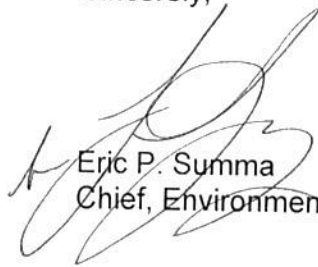
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Our goal on this project continues to be compliance with all contract and permit requirements and all applicable laws and regulations, in particular those related to environmental protection. We intend to continue to examine all relevant information in coordination with your office and continue to work closely with the contractor to ensure improved performance and contract compliance.

Sincerely,

A handwritten signature in black ink, appearing to read "Eric P. Summa", is written over the printed name and title.

Eric P. Summa
Chief, Environmental Branch

Enclosure

Miami Harbor Monthly Inter-Agency Coordination Meeting Agenda

December 5, 2013 - 11:00am-12:30pm

Call-In Number – 877-936-2171; Access Code – 123456; Security Code – 1234

1. Introductions –
2. Phases of the work- Graphic embedded in meeting agenda
 - a. "Base Bid"
 - i. Cut 1 – Outer Entrance Channel – from elbow to flare
 - ii. Cut 2 – OEC from jetties to elbow
 - iii. Artificial Reefs
 - iv. Julia Tuttle Mitigation Area
 - v. Disposal.- ODMDS for non-JTMA material
 - b. Options – Awarded but not exercised
 - i. Option A
 1. Fisherman's Channel
 2. Dodge-Lummus Island Turning Basin
 3. Inner Channel between jetties
 - ii. Option B
 1. Fisher Island Turning Basin
 - c. O&M Dredging of the Main ship channel – Awaiting results of an RFP
3. Past Actions - (completed items remain for one full month, then drop from agenda)
 - a. Coral Relocation baseline surveys (Acropora (2nd Reef) and Non-Acropora (flare))
 - b. Baseline hydrographic surveys artificial reef sites
 - c. JTMA seagrass survey (perimeter of proposed fill site)
 - d. Quantitative 4-weeks Baseline surveys
 - i. Nearshore HB sites
 - e. Artificial Reef Construction
 - i. Quarry site visits – artificial reef materials
 - ii. Staging area ready for rock delivery
 - iii. Contractor mobilization
 - f. JTMA ingress/egress seagrass survey – Report pending
 - g. JTMA baseline station establishment
 - h. Lummus Island Turning Basin Staging area seagrass survey – South of the port for floating equipment
4. On-going Activities
 - a. Hopper Dredging began in Cut 2 on Nov 20, 2013 – Terrapin Island.
 - b. Quantitative 4-weeks Baseline surveys
 - i. Reef 2
 - ii. Reef 3
 - c. Artificial Reef Construction

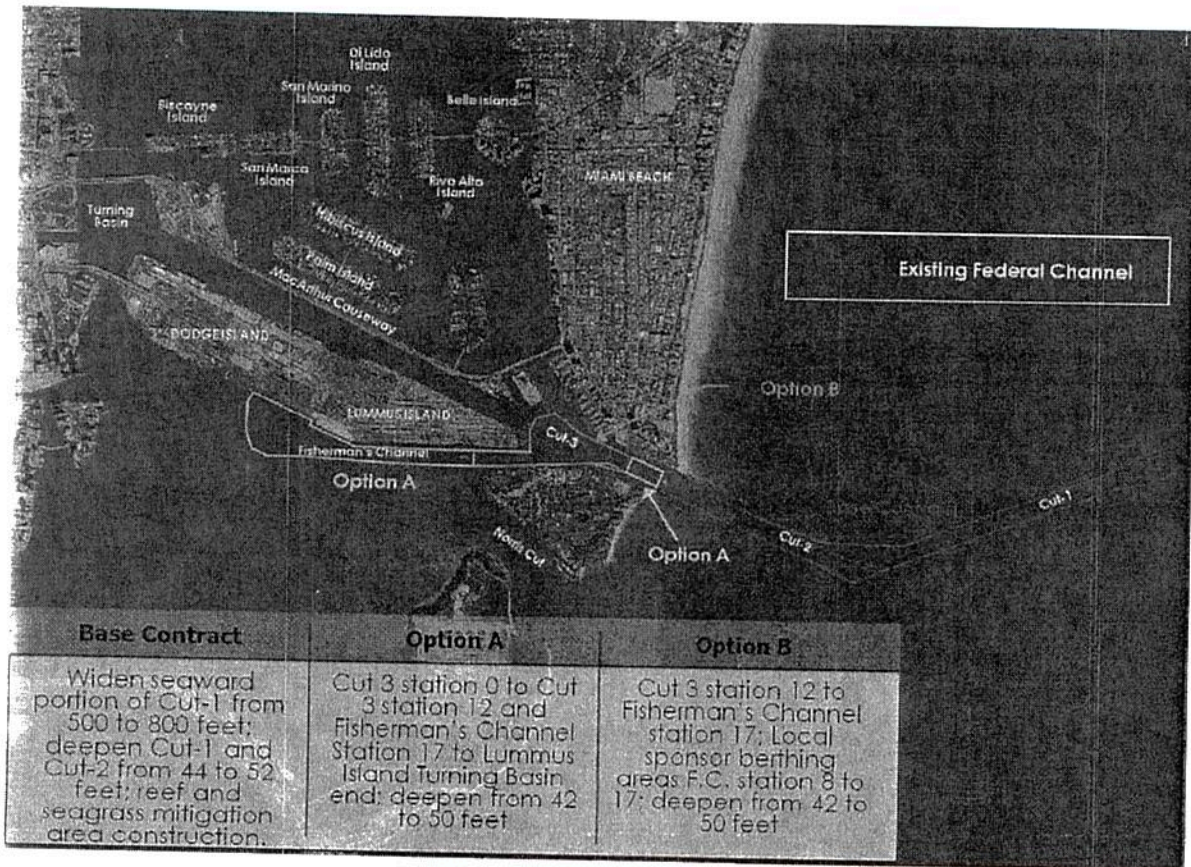
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- i. Rock beginning to arrive on site
 - ii. Preparation for deployment (waiting on equipment)
 - d. Construction Phase Environmental Monitoring – Cut 2
 - i. Hardbottom sedimentation
 - ii. Hardbottom coral stress & transects
 - iii. Water quality – turbidity monitoring
 - e. Coral Relocation
 - i. *Acropora* to outside project footprint
- 5. Pending Activities (two week look ahead)
 - a. Conduct JTMA baseline seagrass surveys
 - b. Coral Relocation
 - i. Non-*Acropora* sp.
 - c. *Dredge Texas* arrives in Miami
- 6. Developing issues Identification
 - a. Site visits by non-contractor staff/persons. Coordination of vessel movements, etc Human health & safety/upfront coordination/communication.
 - b. Response – follow up actions
- 7. Past issues
 - a. Identification
 - i. Inflow boxes on hopper dredge clogged in the first five minutes of dredging which prevents observers from checking contents for turtle take.
 - b. Response
 - i. In coordination with NMFS-PRD, decision made to switch from inflow screening to overflow screening. Inflow boxes opened on Terrapin Island on November 20th with resumption of dredging. Issue resolved.
- 8. Lessons learned
- 9. Questions/Concerns – Communication Path for public comment/concerns/outreach
 - a. Contact USACE – Terri Jordan-Sellers – 904-910-8705 (cell)/Terri.Jordan-Sellers@usace.army.mil
 - b. USACE coordinate with contractor environmental manager
- 10. To Do's/Punch List
 - a. Coordinate with FWC/Lisa Gregg opening areas for coral harvest by non-contractor entities.
- 11. Next Meeting – January ? - First Thursday is Jan 2. Move to 6 or 7 Jan (Monday or Tuesday?)



Appendix

QUALITY CONTROL (QC) SUMMARY TABLES

QCIR

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Appendix

QUALITY CONTROL (QC) SUMMARY TABLES

PROJECT, SAMPLING, AND LABORATORY INFORMATION

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PROJECT, SAMPLING AND LABORATORY INFORMATION

1. The first part of the paper is a review of the literature on the topic of the paper. The second part is a description of the methodology used in the study. The third part is a presentation of the results of the study. The fourth part is a discussion of the results and their implications. The fifth part is a conclusion.

2. The first part of the paper is a review of the literature on the topic of the paper. The second part is a description of the methodology used in the study. The third part is a presentation of the results of the study. The fourth part is a discussion of the results and their implications. The fifth part is a conclusion.

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EPA Region 4 SERIM Data Review and Validation Requirements Dredged Material Disposal Evaluation

Project: Miami Harbor Section 103 Sediment Testing

Project Initiation Date: _____

Project Sampling Dates: _____

Begin: March 28, 2011

End: April 4, 2011

Final Report Date: _____

Final Review Date: _____

I certify the review in this document conforms to all applicable regulatory and project-specific requirements.

QA Officer _____

(Director or President, Validation Company)

Data Review Document

Page 1 of 70

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August 2008

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	22 – 24
TOX Project Checklist	25
TOX Data Checklist	

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Data Review Instructions

This document contains a review table listing specific data quality objectives. The purpose of the review spreadsheet is to provide a template for validation of the project data quality objectives. The tables are contained in an Excel spreadsheet and are designed to follow the project from initial setup to final review. They may also be filled out manually, using the printed copies as templates.

The Table of Contents on page 2 lists the sections of this document that should be filled out for each project.

Prior to sampling, complete the section titled Project Review. This provides information about the contract and the approval of the SAP/QAPP.

Also, prior to sampling, complete the section titled Laboratory Information. This will verify that the laboratory is capable of meeting the DQOs as required.

After sampling, begin filling in the section titled Sample Custody. This section verifies that the samples were properly collected and shipped to the analytical laboratory. For this section, several questions require the laboratory report to be completed and submitted to the contractor before they can be answered.

Once the data report has been received by the contractor, begin filling in the section titled Analytical Review Summary. This section shows information about the contractor review prior to submission of the report to the client by the contractor.

The remaining sections are organized according to analytical group and matrix and should be completed as each section is reviewed. Each section has a field for entering the analytical method number used. Unless otherwise specified, each analytical method should be completed on its own page. Then complete the review of specific QC targets listed in the table. Any QC value that does not meet the specified criteria should be explained in the Review Comments box. In addition, verify that the laboratory has submitted a case narrative for any QC failures along with corrective actions taken. If this is not received, contact the laboratory to add this to the final report.

Project Review

The following sections must be completed prior to field sampling or laboratory analysis:

The SAP/QAPP was prepared and submitted for approval by the Corps of Engineers District Office and EPA Region 4.

Submitted by: Geoff Reichold – Aerostar

Date submitted: [REDACTED]

SAP/QAPP was approved by the Corps of Engineers District Office and EPA Region 4.

Approved by: April Patterson & Joells Verhagen – USACE / Chris McArthur

Date Approved: [REDACTED]

deviations from District-approved protocols for sampling or analysis were clearly stated to the District and approved by the District office EPA Region 4.

[REDACTED]

Specific Privilege: *Deliberative Process Privilege*
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Laboratory Information

Use one sheet for each laboratory that will perform analytical work for this project.

Laboratory Name/Identification: Columbia Analytical Services

Is lab NELAC certified? Yes/No If Yes, please supply certification number E87412

Can lab meet the QC requirements below as specified in the SAP/QAPP?

Yes/No	
<input type="checkbox"/> Y	Analytical requirement
<input type="checkbox"/> Y	Instrumentation
<input type="checkbox"/> Y	MDL's
<input type="checkbox"/> Y	Precision and accuracy
<input type="checkbox"/> y	Required turnaround time

Note below any requirements the laboratory is unable to meet.

Sample Custody

Was all required information on the chain-of-custody form:

(Yes/No)

Y	Did chain of custody forms accompany samples to subcontract lab?
N	Is the project identification on the chain of custody? - [REDACTED]
N	Are the analyses requested printed on the sample containers?
Y	Were all samples correctly identified?
Y	Were the analyses correctly identified on the chain of custody or an attached document listed on the chain of custody?
Y	Were Sample dates and times listed on the chain of custody?
Y	Were the chains of custody signed by both the relinquisher and receiver of the samples?
Y	Was the carrier identified on the chain of custody?
Y	If more than one chain of custody was needed for samples, are the chains of custody clearly numbered?
Y	Were samples packed on wet ice, with an expected receipt temperature of $4 \pm 2^{\circ}\text{C}$?
Y	Were any sample conditions or irregularities (broken bottles, improper temperature) noted on the chain of custody or accompanying paperwork?
Y	Was the chain of custody submitted as part of the report to the primary contractor?
Y	Were all requested analyses performed?
Y	Was adequate sample volume provided to the contractor lab?
Y	If any anomalous behavior of the samples was found, was it noted in the lab case narrative?

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Additional sample custody issues or deficiencies:

Inadequate room on the sample labels for all analyses. The analyses are provided as an attachment to the chain of custody.

Analytical Review Summary

Were all raw data included in the final report?

(Yes/No)

<input checked="" type="checkbox"/>	Prep logs
<input checked="" type="checkbox"/>	Analytical logs
<input checked="" type="checkbox"/>	Data reduction logs
<input checked="" type="checkbox"/>	Calculations
<input checked="" type="checkbox"/>	Data report
<input checked="" type="checkbox"/>	QC package

Verify that samples were prepared according to the method specified.

<input checked="" type="checkbox"/>	10% check
<input type="checkbox"/>	100% check

Verify that samples were analyzed according to the method specified.

<input checked="" type="checkbox"/>	10% check
<input type="checkbox"/>	100% check

Verify that data were properly transferred from run to data report.

<input checked="" type="checkbox"/>	10% check
<input type="checkbox"/>	100% check

Verify that QC was calculated and within limits and complete the QC forms provided in this package.

<input checked="" type="checkbox"/>	10% check
<input type="checkbox"/>	100% check

Additional data quality issues:

List of Acronyms

IC	Initial Calibration
MDL	Method Detection Limit
LCS	Laboratory Control Sample
CCV	Continuing Calibration Verification
MB	Method Blank
MS/MSD/MST	Matrix Spike/Matrix Spike Duplicate/Matrix Spike Triplicate
IS	Internal Standard
LFB	Laboratory Fortified Blank
RL	Reporting Limit
LDR	Linear Dynamic Range
SRM	Standard Reference Material
ICV	Initial Calibration Verification
SAP/QAPP	Sampling and Analysis Plan/Quality Assurance Project Plan
SERIM	EPA Region 4 - Southeast Regional Implementation Manual

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Wallace (C.A.S.)

Review Date: 7/25/11

Parameter: **Metals** (e.g. Silver, Arsenic)

List Metals Analyzed: As, Cd, Cr, Cu, Pb, Hg, Ni, Ag, and Zn

Matrix: ☐ Sediment ☐ Water/Elutriate ☒ Tissue (M.n.)

Analytical Method Used: 200.8, 200.7 & 7471A

QC Measurement	Frequency	Acceptance Criteria	Criteria Met (Y/N)	Review Comments
MB	1 per 20 samples or 1 per batch up to 20 samples	No analyte should be detected > RL	Y	
MS/MSD/MST	1 set per 20 samples or per batch	70 - 130% for spike limits 30% RSD for precision	N	Zinc exceeded the acceptance limits in the MSD of sample M.n. E MH11-6 Rep. 4. The associated LCS/LCSD results indicated that the analysis was in control. No further corrective action was necessary.
Duplicate	1 per 20 samples or 1 per batch up to 20 samples	30% RSD for precision	Y	
SRM	1 per 20 samples or 1 per batch up to 20 samples	70 - 130% Recovery	Y	
LCS/LFB	1 per 20 samples or 1 per batch up to 20 samples	70 - 130% Recovery	Y	
ICV	Immediately following calibration curve	90 - 110% Recovery	Y	

Project Identification: Miami Harbor Section 103 Sediment Testing

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Review Date: 07/25/11

Parameter: **Metals (e.g. Silver, Arsenic)**

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Matrix: ☐ Sediment ☐ Water/Elutriate ☒ Tissue (M.n.)

Analytical Method Used: 200.8, 200.7 & 7471A

QC Measurement	Frequency	Acceptance Criteria	Criteria Met (Y/N)	Review Comments
CCV	Minimum-check calibration at middle and end of each batch or 1 per 10 analyses, whichever is greater	90 – 110% Recovery	Y	
LDR	Verify LDR once per quarter for ICP analyses and one time for mercury analyses		Y	Maintained at the laboratory.
IC	Verify initial calibration for AA and mercury analysis performed daily	cc> 0.9950 for calibration	Y	
MDL	Verify MDL study once per year for each analyte of interest	Updated annually	Y	Maintained at the laboratory.
ICB	Immediately after initial calibration		Y	

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Wallace (C.A.S.)

Review Date: 07/25/11

Parameter: **Metals** (e.g. Silver, Arsenic)

List Metals Analyzed: As, Cd, Cr, Cu, Pb, Hg, Ni, Ag, and Zn

Matrix: ☐ Sediment ☐ Water/Elutriate ☒ Tissue (M.n.)

Analytical Method Used: _____

<p>Additional Issues Related to Data Quality</p>	<p><i>Use this space to enter any additional comments related to this section that were not addressed above</i></p>
--	---

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Wallace (C.A.S.)

Review Date: 07/25/11

Parameter: ☐ PAHs ☒ Pesticides ☐ PCBs
 Matrix: ☐ Sediment ☐ Water/Elutriate ☒ Tissue (M.n.)

Analytical Method Used: 8081A

QC Measurement	Frequency	Acceptance Criteria	Criteria Met (Y/N)	Review Comments
MB	1 per 20 samples or 1 per batch up to 20 samples	No analyte should be detected > RL	Y	
MS/MSD/MST	1 set per 20 samples or per batch	50 - 150% for spike limits 50% RSD for precision	Y	
Duplicate	1 per 20 samples or 1 per batch up to 20 samples	30% RSD for precision	N	The percent difference exceeded the acceptance criteria in the duplicate analysis of sample M.n. E-MH11-6 Rep. 3 for 4,4'-DDT; however, the concentrations were not significantly greater than the MRL. No further action was necessary.
SRM	1 per 20 samples or 1 per batch up to 20 samples	Within limits specified by provider	N	The advisory limits were exceeded for alpha-Chlordane, gamma-Chlordane, 4,4'-DDE and 4,4'-DDD. No further action was necessary.
ICV	Immediately following calibration curve	80 - 120% Recovery	Y	
CCV	At the beginning of every 12 hours of analysis	<15% Difference	Y	

August 2008

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Wallace (C.A.S.)

Review Date: 07/25/11

Parameter: ☐ PAHs ☒ Pesticides ☐ PCBs
Matrix: ☐ Sediment ☐ Water/Elutriate ☒ Tissue (M.n.)

Analytical Method Used: 8081A

Surrogates	Every Sample	30 – 50%	Y	
Internal Standard	Every Sample	30 – 50%	Y	
IC	Verify after each initial calibration	<20% RSD for each analyte	Y	
MDL	Verify MDL study once per year for each analyte of interest	Updated annually	Y	Maintained at the laboratory.
ICB	Immediately after initial calibration	No analyte should be detected > RL	y	

Additional Issues Related to Data Quality	
	<p><i>Use this space to enter any additional comments related to this section that were not addressed above</i></p> <p>Detection limits were elevated for 8081 analyses. The laboratory indicated that non-target background components caused interference. The results were appropriately qualified.</p> <p>According to the laboratory case narrative, <u>the presence of Aroclor patterns in the samples may have caused a high bias for some of the pesticide analytes.</u></p>

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Wallace (C.A.S.)

Review Date: 7/25/11

Parameter: ☒ PAHs ☐ Pesticides ☐ PCBs
 Matrix: ☐ Sediment ☐ Water/Elutriate ☒ Tissue (M.n.)

Analytical Method Used: 8270C

QC Measurement	Frequency	Acceptance Criteria	Criteria Met (Y/N)	Review Comments
MB	1 per 20 samples or 1 per batch up to 20 samples	No analyte should be detected > RL	Y	
MS/MSD/MST	1 set per 20 samples or per batch	50 - 150% for spike limits 50% RSD for precision	Y	
Duplicate	1 per 20 samples or 1 per batch up to 20 samples	30% RSD for precision	N	The duplicate analysis of sample M.n. E-MH11-3/4 Rep. 3 exceeded the acceptance criteria for benzo(k)fluoranthene; however, the concentrations were not significantly greater than the MRL. No further action was necessary.
SRM	1 per 20 samples or 1 per batch up to 20 samples	Within limits specified by provider	Y	
ICV	Immediately following calibration curve	80 - 120% Recovery	Y	
CCV	At the beginning of every 12 hours of analysis	<15% Difference	Y	

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Wallace (C.A.S.)

Review Date: 7/25/11

Parameter:

☒ PAHs

☐ Pesticides

☐ PCBs

Matrix:

☐ Sediment

☐ Water/Elutriate

☒ Tissue (M.n.)

Analytical Method Used: _____

Surrogates	Every Sample	30 – 50%	Y	
Internal Standard	Every Sample	30 – 50%	Y	
IC	Verify after each initial calibration	<20% RSD for each analyte	Y	
MDL	Verify MDL study once per year for each analyte of interest	Updated annually	Y	Maintained at the laboratory.
ICB	Immediately after initial calibration	No analyte should be detected > RL	Y	

Additional Issues Related to Data Quality

Use this space to enter any additional comments related to this section that were not addressed above

The results reported for benzo(a)pyrene in sample M.n. E-MH11-5 Rep.4 may contain a high bias (due to matrix interference).

The detection limit for benzo(a)pyrene in sample M.n. E-H11-5 Rep. 2 was elevated. The laboratory indicated that non-target background components caused interference. The result was appropriately qualified.

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Wallace (C.A.S.)

Review Date: 7/25/11

Parameter: ☐ PAHs ☐ Pesticides ☒ PCBs
 Matrix: ☐ Sediment ☐ Water/Elutriate ☒ Tissue (M.n.)

Analytical Method Used: 8082A

QC Measurement	Frequency	Acceptance Criteria	Criteria Met (Y/N)	Review Comments
MB	1 per 20 samples or 1 per batch up to 20 samples	No analyte should be detected > RL	Y	
MS/MSD/MST	1 set per 20 samples or per batch	50 - 150% for spike limits 50% RSD for precision	Y	
Duplicate	1 per 20 samples or 1 per batch up to 20 samples	30% RSD for precision	N	The duplicate analyses of samples M.n. E-MH11-3/4 Rep. 1 and M.n.E-MH11-6 Rep. 3 exceeded the acceptance criteria for PCB 153 and PCB 187; however, the concentrations were not significantly greater than the MRLs. No further action was necessary.
SRM	1 per 20 samples or 1 per batch up to 20 samples	Within limits specified by provider	N	The advisory limits were exceeded for PCB 183 and PCB 170. No further action was necessary.
ICV	Immediately following calibration curve	80 - 120% Recovery	Y	
CCV	At the beginning of every 12 hours of analysis	<15% Difference	N	See Case Narrative for a detailed explanation. No further action was necessary.

Information Redacted pursuant to
 5 U.S.C. Section 552 (b)(5), Exemption 5,
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 Specific Privilege: Deliberative Process Privilege

August 2008

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Wallace (C.A.S.)

Review Date: 7/25/11

Parameter: ☐ PAHs ☐ Pesticides ☒ PCBs
Matrix: ☐ Sediment ☐ Water/Elutriate ☒ Tissue (M.n.)

Analytical Method Used: 8082A

Surrogates	Every Sample	30 – 50%	Y	
Internal Standard	Every Sample	30 – 50%	Y	
IC	Verify after each initial calibration	<20% RSD for each analyte	Y	
MDL	Verify MDL study once per year for each analyte of interest	Updated annually	Y	Maintained at the laboratory.
ICB	Immediately after initial calibration	No analyte should be detected > RL	Y	

Additional Issues Related to Data Quality	<p>Use this space to enter any additional comments related to this section that were not addressed above</p> <p>Detection limits were elevated for 8082 analyses. The laboratory indicated that non-target background components caused interference. The results were appropriately qualified.</p>
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Information Redacted pursuant to
5 U.S.C. Section 552 (b)(5), Exemption 5,
Privileged Inter/Intra Agency Document
Specific Privilege: Deliberative Process Privilege

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Wallace (C.A.S.)

Review Date: 7/25/11

Parameter: Tributyltins

Matrix: ☐ Sediment ☐ Water/Elutriate ☒ Tissue (M.n.)

Analytical Method Used: Krone

QC Measurement	Frequency	Acceptance Criteria	Criteria Met (Y/N)	Review Comments
MB	1 per 20 samples or 1 per batch up to 20 samples	No analyte should be detected > RL	Y	
MS/MSD/MST	1 set per 20 samples or per batch	40%	Y	
Duplicate	1 per 20 samples or 1 per batch up to 20 samples	40%	Y	No excursions for Tri-n-butyltin cation. Percent difference exceeded the acceptance criteria for Di-n-butyltin and n-Butyltin in the duplicate analyses; however, the concentrations were not significantly greater than the MRL. No further action was necessary.
SRM	1 per 20 samples or 1 per batch up to 20 samples	Within limits specified by provider	Y	
ICV	Immediately following calibration curve	75-125%	Y	
CCV	At the beginning of every 12 hours of analysis	75-125%	Y	
Surrogates	Every sample	20-150%	Y	
IC	Verify after each initial calibration	<20% RSD	Y	

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Wallace (C.A.S.)

Review Date: 7/25/11

Parameter: **Tributyltins**

Matrix: ☐ Sediment ☐ Water/Elutriate ☒ Tissue (M.n.)

Analytical Method Used: Krone

MDL	Verify MDL study once per year for each analyte of interest	Updated annually	Y	Maintained at the laboratory.
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Additional Issues Related to Data Quality	<i>Use this space to enter any additional comments related to this section that were not addressed above</i>

Project Identification: Miami Harbor Section 103 Sediment Testing
 Reviewed by: E. Wallace (C.A.S.)
 Review Date: 7/25/11

Parameter: Metals (e.g. Silver, Arsenic)

List Metals Analyzed: As, Cd, Cr, Cu, Pb, Hg, Ni, Ag, and Zn

Matrix: ☐ Sediment ☐ Water/Elutriate ☒ Tissue (N.v.)

Analytical Method Used: 200.8, 200.7 & 7471A

QC Measurement	Frequency	Acceptance Criteria	Criteria Met (Y/N)	Review Comments
MB	1 per 20 samples or 1 per batch up to 20 samples	No analyte should be detected > RL	N	Method blank K1106065-MB1 contained lead above the MRL. The applicable sample results were appropriately qualified by the laboratory. No further action was necessary.
MS/MSD/MST	1 set per 20 samples or per batch	70 - 130% for spike limits 30% RSD for	N	The percent recovery for zinc exceeded the acceptance criteria in the MS of sample N.v. RS-MH11 Rep. 3. The RSD exceeded the acceptance criteria in the MSD of samples N.v. RS-MH11 Rep. 3 and N.v. 11-DA Rep. 2. The laboratory appropriately qualified the associated sample data. No further action was necessary.
Duplicate	1 per 20 samples or 1 per batch up to 20 samples	30% RSD for precision	N	The percent difference exceeded the acceptance criteria for zinc in the duplicate analyses of samples N.v.RS-MH11 Rep. 3, N.v.11-DA Rep. 2, and N.v. E-mh11-5 Rep. 5. The percent difference exceeded the acceptance criteria for mercury in the duplicate analysis of sample N.v. RS-MH11 Rep. 3. The laboratory appropriately qualified the associated sample data.
SRM	1 per 20 samples or 1 per batch up to 20 samples	70 - 130% Recovery	N	The percent recovery exceeded the advisory limit for chromium; however, no further action was required.
LCS/LFB	1 per 20 samples or 1 per batch up to 20 samples	70 - 130% Recovery	Y	
ICV	Immediately following calibration curve	90 - 110% Recovery	Y	

August 2008

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Wallace (C.A.S.)

Review Date: 7/25/11

Parameter: **Metals** (e.g. Silver, Arsenic)

List Metals Analyzed: As, Cd, Cr, Cu, Pb, Hg, Ni, Ag, and Zn

Matrix: ☐ Sediment ☐ Water/Elutriate ☒ Tissue (N.v.)

Analytical Method Used: : 200.8, 200.7 & 7471A

QC Measurement	Frequency	Acceptance Criteria	Criteria Met (Y/N)	Review Comments
CCV	Minimum-check calibration at middle and end of each batch or 1 per 10 analyses, whichever is greater	90 – 110% Recovery	Y	
LDR	Verify LDR once per quarter for ICP analyses and one time for mercury analyses		Y	Maintained at the laboratory.
IC	Verify initial calibration for AA and mercury analysis performed daily	cc> 0.9950 for all calibrations	Y	
MDL	Verify MDL study once per year for each analyte of interest	Updated annually	Y	Maintained at the laboratory.
ICB	Immediately after initial calibration		Y	

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Wallace (C.A.S.)

Review Date: 7/25/11

Parameter: **Metals** (e.g. Silver, Arsenic)

List Metals Analyzed: As, Cd, Cr, Cu, Pb, Hg, Ni, Ag, and Zn

Matrix: ☐ Sediment ☐ Water/Elutriate ☒ Tissue (N.v.)

Analytical Method Used: _____

Additional Issues Related to Data Quality

Use this space to enter any additional comments related to this section that were not addressed above

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Wallace (C.A.S.)

Review Date: 7/25/11

Parameter:

Matrix:

☐ PAHs

☐ Sediment

☒ Pesticides

☐ Water/Elutriate

☐ PCBs

☒ Tissue (N.v.)

Analytical Method Used: 8081A

QC Measurement	Frequency	Acceptance Criteria	Criteria Met (Y/N)	Review Comments
MB	1 per 20 samples or 1 per batch up to 20 samples	No analyte should be detected > RL	Y	
MS/MSD/MST	1 set per 20 samples or per batch	50 - 150% for spike Limits 50% RSD for precision	Y	
Duplicate	1 per 20 samples or 1 per batch up to 20 samples	30% RSD for precision	N	The duplicate analysis of sample E-MH11-6 Rep 3 exceeded the acceptance criteria for beta-BHC; however, the concentrations were not significantly greater than the MRL. No further action was necessary.
SRM	1 per 20 samples or 1 per batch up to 20	Within limits specified by provider	N	The advisory limits were exceeded for gamma-Chlordane. No further action was necessary.
ICV	Immediately following calibration curve	80 - 120% Recovery	Y	
CCV	At the beginning of every 12 hours of analysis	<15% Difference	Y	

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Wallace (C.A.S.)

Review Date: 7/25/11

Parameter:

Matrix:

☐ PAHs

☐ Sediment

☒ Pesticides

☐ Water/Elutriate

☐ PCBs

☒ Tissue (N.v.)

Analytical Method Used: 8081A

Surrogates	Every Sample	30 – 50%	Y	
Internal Standard	Every Sample	30 – 50%	Y	
IC	Verify after each initial calibration	<20% RSD for each analyte	Y	
MDL	Verify MDL study once per year for each analyte of interest	Updated annually	Y	Maintained at the laboratory.
ICB	Immediately after initial calibration	No analyte should be detected > RL	Y	

Additional Issues Related to Data Quality

Use this space to enter any additional comments related to this section that were not addressed above

Detection limits were elevated for 8081 analyses. The laboratory indicated that non-target background components caused interference. The results were appropriately qualified.

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Wallace (C.A.S.)

Review Date: 7/25/11

Parameter: ☒ PAHs ☐ Pesticides ☐ PCBs
 Matrix: ☐ Sediment ☐ Water/Elutriate ☒ Tissue (N.v.)

Analytical Method Used: 8270C

QC Measurement	Frequency	Acceptance Criteria	Criteria Met (Y/N)	Review Comments
MB	1 per 20 samples or 1 per batch up to 20 samples	No analyte should be detected > RL	Y	
MS/MSD/MST	1 set per 20 samples or per batch	50 - 150% for spike limits 50% RSD for precision	Y	
Duplicate	1 per 20 samples or 1 per batch up to 20 samples	30% RSD for precision	N	The duplicate analyses of samples N.v. RS-MH11 Rep 2 and N.v. E-MH11-3/4 Rep. 4 exceeded the acceptance criteria for several analytes; however, the concentrations were not significantly greater than the MRLs. No further action was necessary.
SRM	1 per 20 samples or 1 per batch up to 20 samples	Within limits specified by provider	Y	
ICV	Immediately following calibration curve	80 - 120% Recovery	Y	
CCV	At the beginning of every 12 hours of analysis	<15% Difference	Y	

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Wallace (C.A.S.)

Review Date: 7/25/11

Parameter: ☒ PAHs ☐ Pesticides ☐ PCBs
Matrix: ☐ Sediment ☐ Water/Elutriate ☒ Tissue (N.v..)

Analytical Method Used: 8270C

Surrogates	Every Sample	30 – 50%	Y	
Internal Standard	Every Sample	30 – 50%	Y	
IC	Verify after each initial calibration	<20% RSD for each analyte	Y	
MDL	Verify MDL study once per year for each analyte of interest	Updated annually	Y	Maintained at the laboratory.
ICB	Immediately after initial calibration	No analyte should be detected > RL	Y	

Additional Issues Related to Data Quality	<i>Use this space to enter any additional comments related to this section that were not addressed above</i>
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Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Wallace (C.A.S.)

Review Date: 7/25/11

Parameter: ☐ PAHs ☐ Pesticides ☒ PCBs
 Matrix: ☐ Sediment ☐ Water/Elutriate ☒ Tissue (N.v.)

Analytical Method Used: 8082A

QC Measurement	Frequency	Acceptance Criteria	Criteria Met (Y/N)	Review Comments
MB	1 per 20 samples or 1 per batch up to 20 samples	No analyte should be detected > RL	Y	
MS/MSD/MST	1 set per 20 samples or per batch	50 - 150% for spike Limits 50% RSD for precision	N	The acceptance criteria was exceeded for PCB 184 in the MSD of sample N.v. E-MH11-3/4 Rep. 5; however, the associated LCS/LCSD results indicated that the analysis was in control. No further corrective action was necessary.
Duplicate	1 per 20 samples or 1 per batch up to 20 samples	30% RSD for precision	N	The duplicate analyses of samples N.v. E-MH11-3/4 Rep. 2 and N.v. E-MH11-6 Rep. 3 exceeded the acceptance criteria for several congeners; however, the concentrations were not significantly greater than the MRLs. No further corrective action was necessary.
SRM	1 per 20 samples or 1 per batch up to 20 samples	Within limits specified by provider	N	The advisory limits were exceeded for PCB 156, PCB 170 and PCB 183 in SRM KWG1106440-6. The advisory limits were exceeded for PCB 156 and PCB 170 in SRM KWG1106441-6. No further action was necessary.
ICV	Immediately following calibration curve	80 - 120% Recovery	Y	
CCV	At the beginning of every 12 hours of analysis	<15% Difference	N	See the Case Narrative for a detailed explanation. No further action was necessary. ←

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Wallace (C.A.S.)

Review Date: 7/25/11

Parameter: ☐ PAHs ☐ Pesticides ☒ PCBs
Matrix: ☐ Sediment ☐ Water/Elutriate ☒ Tissue (N.v.)

Analytical Method Used: 8082A

Surrogates	Every Sample	30 – 50%	Y	
Internal Standard	Every Sample	30 – 50%	Y	
IC	Verify after each initial calibration	<20% RSD for each analyte	Y	
MDL	Verify MDL study once per year for each analyte of interest	Updated annually	Y	Maintained at the laboratory.
ICB	Immediately after initial calibration	No analyte should be detected > RL	Y	

Additional Issues Related to Data Quality	<p><i>Use this space to enter any additional comments related to this section that were not addressed above</i></p> <p>Detection limits were elevated for 8082 analyses. The laboratory indicated that non-target background components caused interference. The results were appropriately qualified.</p>
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Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Wallace (C.A.S.)

Review Date: 7/25/11

Parameter: **Tributyltins**

Matrix: ☐ Sediment ☐ Water/Elutriate ☒ Tissue (N.v.)

Analytical Method Used: Krone

QC Measurement	Frequency	Acceptance Criteria	Criteria Met (Y/N)	Review Comments
MB	1 per 20 samples or 1 per batch up to 20 samples	No analyte should be detected > RL	Y	
MS/MSD/MST	1 set per 20 samples or per batch	40%	Y	
Duplicate	1 per 20 samples or 1 per batch up to 20 samples	40%	N	The RPD exceeded the acceptance criteria for Tri-n-butyltin and n-Butyltin in sample N.v. E-MH11-6 Rep. 3 and for Tri-n-butyltin, Di-n-butyltin, and n-butyltin in sample NV. E-MH113/4 Rep. 1. The concentrations were not significantly greater than the MRLs. No further action was necessary.
SRM	1 per 20 samples or 1 per batch up to 20 samples	Within limits specified by provider	Y	
ICV	Immediately following calibration curve	75-125%	Y	
CCV	At the beginning of every 12 hours of analysis	75-125%	Y	
Surrogates	Every sample	20-150%	Y	
IC	Verify after each initial calibration	<20% RSD	Y	

Project Identification: Miami Harbor Section 103 Sediment Testing
Reviewed by: E. Wallace (C.A.S.)
Review Date: 7/25/11

Parameter: **Tributyltins**

Matrix:

☐ Sediment

☐ Water/Elutriate

☒ Tissue (N.v.)

Analytical Method Used: Krone

MDL	Verify MDL study once per year for each analyte of interest	Updated annually	Y	Maintained at the laboratory.
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Additional Issues Related to Data Quality

Use this space to enter any additional comments related to this section that were not addressed above

Laboratory Information

Use one sheet for each laboratory that will perform analytical work for this project.

Laboratory Name/Identification: Jupiter Environmental Laboratories, Inc.

Is lab NELAC certified? Yes/No If Yes, please supply certification number E86546

Can lab meet the QC requirements below as specified in the SAP/QAPP?

Yes/No

Y	Analytical requirement
Y	Instrumentation
Y	MDL's
Y	Precision and accuracy
Y	Required turnaround time

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Specific Privilege: Deliberative Process Privilege

Note below any requirements the laboratory is unable to meet.

Laboratory is not certified for PCB congeners by 8082.

Sample Custody

Was all required information on the chain-of-custody form:

(Yes/No)

Y	Did chain of custody forms accompany samples to subcontract lab?
Y	Is the project identification on the chain of custody?
Y	Are the analyses requested printed on the sample containers?
Y	Were all samples correctly identified? _____
Y	Were the analyses correctly identified on the chain of custody or an attached document listed on the chain of custody?
Y	Were Sample dates and times listed on the chain of custody?
Y	Were the chains of custody signed by both the relinquisher and receiver of the samples?
Y	Was the carrier identified on the chain of custody? _____
Y	If more than one chain of custody was needed for samples, are the chains of custody clearly numbered?
Y	Were samples packed on wet ice, with an expected receipt temperature of $4 \pm 2^{\circ}\text{C}$? _____
Y	Were any sample conditions or irregularities (broken bottles, improper temperature) noted on the chain of custody or accompanying paperwork?
Y	Was the chain of custody submitted as part of the report to the primary contractor?
Y	Were all requested analyses performed?
Y	Was adequate sample volume provided to the contractor lab?
Y	If any anomalous behavior of the samples was found, was it noted in the lab case narrative?

Additional sample custody issues or deficiencies:

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 Specific Privilege: Deliberative Process Privilege

Analytical Review Summary

Were all raw data included in the final report?

(Yes/No)

<input type="checkbox"/> N	Prep logs
<input type="checkbox"/> N	Analytical logs
<input type="checkbox"/> N	Data reduction logs
<input type="checkbox"/> N	Calculations
<input type="checkbox"/> Y	Data report
<input type="checkbox"/> Y	QC package

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Specific Privilege: Deliberative Process Privilege

Verify that samples were prepared according to the method specified.

<input type="checkbox"/> Y	10% check
<input type="checkbox"/>	100% check

Verify that samples were analyzed according to the method specified.

<input type="checkbox"/> Y	10% check
<input type="checkbox"/>	100% check

Verify that data were properly transferred from run to data report.

<input type="checkbox"/> Y	10% check
<input type="checkbox"/>	100% check

Verify that QC was calculated and within limits and complete the QC forms provided in this package.

<input type="checkbox"/> Y	10% check
<input type="checkbox"/>	100% check

Additional data quality issues:

Project Identification: Miami Harbor Section 103 Sediment Testing
 Reviewed by: E. Dabrea (Jupiter)
 Review Date: 07/22/11

Parameter: **Metals** (e.g. Silver, Arsenic)

List Metals Analyzed: Cr, Ni, Cu, Zn, As, Se, Ag, Cd, Pb, Hg, Al, Fe

Matrix: ☒ Sediment ☐ Water/Elutriate ☐ Tissue

Analytical Method Used: 200.8, 6020, 1631E

QC Measurement	Frequency	Acceptance Criteria	Criteria Met (Y/N)	Review Comments
MB	1 per 20 samples or 1 per batch up to 20 samples	No analyte should be detected > RL	Y	
MS/MSD/MST	1 set per 20 samples or per batch	70 - 130% for spike limits 30% RSD for precision	N	The percent recovery exceeded the lower limit of the acceptance criteria for selenium in the MS/MSD of E-MH11-5. No further corrective action was necessary.
Duplicate	1 per 20 samples or 1 per batch up to 20 samples	30% RSD for precision	Y	
SRM	1 per 20 samples or 1 per batch up to 20 samples	70 - 130% Recovery	Y	PE samples run during analysis
LCS/LFB	1 per 20 samples or 1 per batch up to 20 samples	70 - 130% Recovery	Y	
ICV	Immediately following calibration curve	90 - 110% Recovery	Y	

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Dabrea (Jupiter)

Review Date: 07/22/11

Parameter: **Metals** (e.g. Silver, Arsenic)

List Metals Analyzed: Cr, Ni, Cu, Zn, As, Se, Ag, Cd, Pb, Hg, Al, Fe

Matrix: ☒ Sediment ☐ Water/Elutriate ☐ Tissue

Analytical Method Used: 200.8, 6020, 1631E

QC Measurement	Frequency	Acceptance Criteria	Criteria Met (Y/N)	Review Comments
CCV	Minimum-check calibration at middle and end of each batch or 1 per 10 analyses, whichever is greater	90 – 110% Recovery	Y	
LDR	Verify LDR once per quarter for ICP analyses and one time for mercury analyses		Y	
IC	Verify initial calibration for AA and mercury analysis performed daily	cc > 0.9950 for all calibrations	Y	
MDL	Verify MDL study once per year for each analyte of interest	Updated annually	Y	
ICB	Immediately after initial calibration		Y	

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Dabrea (Jupiter)

Review Date: 07/22/11

Parameter: **Metals** (e.g. Silver, Arsenic)

List Metals Analyzed: Cr, Ni, Cu, Zn, As, Se, Ag, Cd, Pb, Hg, Al, Fe

Matrix: ☒ Sediment ☐ Water/Elutriate ☐ Tissue

Analytical Method Used: 200.8, 6020, 1631E

Additional Issues Related to Data Quality

Use this space to enter any additional comments related to this section that were not addressed above

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Dabrea (Jupiter)

Review Date: 07/22/11

Parameter: ☐ PAHs ☐ Pesticides ☒ PCBs
Matrix: ☒ Sediment ☐ Water/Elutriate ☐ Tissue

Analytical Method Used: EPA 8082

QC Measurement	Frequency	Acceptance Criteria	Criteria Met (Y/N)	Review Comments
MB	1 per 20 samples or 1 per batch up to 20 samples	No analyte should be detected > RL	Y	
MS/MSD/MST	1 set per 20 samples or per batch	50 - 150% for spike limits 50% RSD for precision	Y	
Duplicate	1 per 20 samples or 1 per batch up to 20 samples	30% RSD for precision	Y	
SRM	1 per 20 samples or 1 per batch up to 20 samples	Within limits specified by provider	Y	PE samples run during analysis.
ICV	Immediately following calibration curve	80 - 120% Recovery	Y	
CCV	At the beginning of every 12 hours of analysis	<15% Difference	Y	

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Dabrea (Jupiter)

Review Date: 07/22/11

Parameter: ☐ PAHs ☐ Pesticides ☒ PCBs
Matrix: ☒ Sediment ☐ Water/Elutriate ☐ Tissue

Analytical Method Used: EPA 8082

Surrogates	Every Sample	30 – 150%	N	Percent recovery exceeded the lower limit of the acceptance criteria for Decachlorobiphenyl in sample E-MH11-2.
Internal Standard	Every Sample	30 – 150%	N	Not applicable for this method. [REDACTED]
IC	Verify after each initial calibration	<20% RSD for each analyte	Y	
MDL	Verify MDL study once per year for each analyte of interest	Updated annually	N	[REDACTED]
ICB	Immediately after initial calibration	No analyte should be detected > RL	Y	

Additional Issues Related to Data Quality	Use this space to enter any additional comments related to this section that were not addressed above
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Specific Privilege: Deliberative Process Privilege

Information Redacted pursuant to 5 U.S.C. Section 552 (b)(5), Exemption 5, Privileged Inter/Intra Agency Document

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Dabrea (Jupiter)

Review Date: 07/22/11

Parameter: ☒ PAHs ☐ Pesticides ☐ PCBs
Matrix: ☒ Sediment ☐ Water/Elutriate ☐ Tissue

Analytical Method Used: EPA 8270C

QC Measurement	Frequency	Acceptance Criteria	Criteria Met (Y/N)	Review Comments
MB	1 per 20 samples or 1 per batch up to 20 samples	No analyte should be detected > RL	Y	
MS/MSD/MST	1 set per 20 samples or per batch	50 - 150% for spike limits 50% RSD for precision	Y	
Duplicate	1 per 20 samples or 1 per batch up to 20 samples	30% RSD for precision	Y	
SRM	1 per 20 samples or 1 per batch up to 20 samples	Within limits specified by provider	Y	
ICV	Immediately following calibration curve	80 - 120% Recovery	Y	
CCV	At the beginning of every 12 hours of analysis	<15% Difference	Y	

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Dabrea (Jupiter)

Review Date: 07/22/11

Parameter: ☒ PAHs ☐ Pesticides ☐ PCBs
Matrix: ☒ Sediment ☐ Water/Elutriate ☐ Tissue
Analytical Method Used: EPA 8270C

Surrogates	Every Sample	30 – 150%	Y	
Internal Standard	Every Sample	30 – 150%	Y	
IC	Verify after each initial calibration	<20% RSD for each analyte	Y	
MDL	Verify MDL study once per year for each analyte of interest	Updated annually	Y	Maintained at the laboratory.
ICB	Immediately after initial calibration	No analyte should be detected > RL	Y	

Additional Issues Related to Data Quality

Use this space to enter any additional comments related to this section that were not addressed above

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Dabrea (Jupiter)

Review Date: 07/22/11

Parameter: ☐ PAHs ☒ Pesticides ☐ PCBs
Matrix: ☒ Sediment ☐ Water/Elutriate ☐ Tissue

Analytical Method Used: EPA 8081

QC Measurement	Frequency	Acceptance Criteria	Criteria Met (Y/N)	Review Comments
MB	1 per 20 samples or 1 per batch up to 20 samples	No analyte should be detected > RL	Y	
MS/MSD/MST	1 set per 20 samples or per batch	50 - 150% for spike limits 50% RSD for precision	Y	
Duplicate	1 per 20 samples or 1 per batch up to 20 samples	30% RSD for precision	Y	
SRM	1 per 20 samples or 1 per batch up to 20 samples	Within limits specified by provider	Y	
ICV	Immediately following calibration curve	80 - 120% Recovery	Y	
CCV	At the beginning of every 12 hours of analysis	<15% Difference	Y	

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Dabrea (Jupiter)

Review Date: 07/22/11

Parameter: ☐ PAHs ☒ Pesticides ☐ PCBs
Matrix: ☒ Sediment ☐ Water/Elutriate ☐ Tissue

Analytical Method Used: EPA 8081

Surrogates	Every Sample	30 – 50%	Y	
Internal Standard	Every Sample	30 – 50%	N	Utilized bracketed QC. No excursions noted.
IC	Verify after each initial calibration	<20% RSD for each analyte	Y	
MDL	Verify MDL study once per year for each analyte of interest	Updated annually	Y	Maintained at the laboratory.
ICB	Immediately after initial calibration	No analyte should be detected > RL	Y	

Additional Issues Related to Data Quality	<i>Use this space to enter any additional comments related to this section that were not addressed above</i>
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Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Dabrea (Jupiter)

Review Date: 07/22/11

Parameter: **Metals** (e.g. Silver, Arsenic)

List Metals Analyzed: Cr, Ni, Cu, Zn, As, Se, Ag, Cd, Pb, Hg, Al, Fe

Matrix: ☐ Sediment ☒ Water/Elutriate ☐ Tissue

Analytical Method Used: 200.8, 6020, 1631E

QC Measurement	Frequency	Acceptance Criteria	Criteria Met (Y/N)	Review Comments
MB	1 per 20 samples or 1 per batch up to 20 samples	No analyte should be detected > RL	N	Concentrations of silver and iron were found in the method blank; however, the excursions did not have an impact on the associated sample data. The results were appropriately qualified where applicable.
MS/MSD/MST	1 set per 20 samples or per batch	70 - 130% for spike limits 30% RSD for precision	N	Percent recovery exceeded the upper limit of the acceptance criteria for iron in the MS/MSD of 11-DA ELU. No further corrective action was necessary.
Duplicate	1 per 20 samples or 1 per batch up to 20 samples	30% RSD for precision	N	RSD for aluminum exceeded the acceptance criteria in the duplicate analysis of sample 11-DA ELU. No further corrective action was necessary.
SRM	1 per 20 samples or 1 per batch up to 20 samples	70 - 130% Recovery	Y	PE samples run during analysis
LCS/LFB	1 per 20 samples or 1 per batch up to 20 samples	70 - 130% Recovery	Y	
ICV	Immediately following calibration curve	90 - 110% Recovery	Y	

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Dabrea (Jupiter)

Review Date: 07/22/11

Parameter: **Metals** (e.g. Silver, Arsenic)

List Metals Analyzed: Cr, Ni, Cu, Zn, As, Se, Ag, Cd, Pb, Hg, Al, Fe

Matrix: ☐ Sediment ☒ Water/Elutriate ☐ Tissue

Analytical Method Used: 200.8, 6020, 1631E

QC Measurement	Frequency	Acceptance Criteria	Criteria Met (Y/N)	Review Comments
CCV	Minimum-check calibration at middle and end of each batch or 1 per 10 analyses, whichever is greater	90 – 110% Recovery	Y	
LDR	Verify LDR once per quarter for ICP analyses and one time for mercury analyses		Y	
IC	Verify initial calibration for AA and mercury analysis performed daily	cc> 0.9950 for all calibrations	Y	
MDL	Verify MDL study once per year for each analyte of interest	Updated annually	Y	
ICB	Immediately after initial calibration		Y	

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Dabrea (Jupiter)

Review Date: 07/22/11

Parameter: **Metals** (e.g. Silver, Arsenic)

List Metals Analyzed: Cr, Ni, Cu, Zn, As, Se, Ag, Cd, Pb, Hg, Al, Fe

Matrix: ☐ Sediment ☒ Water/Elutriate ☐ Tissue

Analytical Method Used: 200.8, 6020, 1631E

Additional Issues Related to Data Quality

Use this space to enter any additional comments related to this section that were not addressed above

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Dabrea (Jupiter)

Review Date: 07/22/11

Parameter: ☐ PAHs ☐ Pesticides ☒ PCBs
 Matrix: ☐ Sediment ☒ Water/Elutriate ☐ Tissue
 Analytical Method Used: EPA 8082

QC Measurement	Frequency	Acceptance Criteria	Criteria Met (Y/N)	Review Comments
MB	1 per 20 samples or 1 per batch up to 20 samples	No analyte should be detected > RL	Y	
MS/MSD/MST	1 set per 20 samples or per batch	50 - 150% for spike limits 50% RSD for precision	Y	
Duplicate	1 per 20 samples or 1 per batch up to 20 samples	30% RSD for precision	Y	
SRM	1 per 20 samples or 1 per batch up to 20 samples	Within limits specified by provider	Y	PE samples run during analysis.
ICV	Immediately following calibration curve	80 - 120% Recovery	Y	
CCV	At the beginning of every 12 hours of analysis	<15% Difference	Y	

August 2008

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Dabrea (Jupiter)

Review Date: 07/22/11

Parameter: ☐ PAHs ☐ Pesticides ☒ PCBs
Matrix: ☐ Sediment ☒ Water/Elutriate ☐ Tissue

Analytical Method Used: EPA 8082

Surrogates	Every Sample	30 – 150%	Y	
Internal Standard	Every Sample	30 – 150%	N	Not applicable for this method.
IC	Verify after each initial calibration	<20% RSD for each analyte	Y	
MDL	Verify MDL study once per year for each analyte of interest	Updated annually	N	
ICB	Immediately after initial calibration	No analyte should be detected > RL	Y	

Additional Issues Related to Data Quality	Use this space to enter any additional comments related to this section that were not addressed above
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Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Dabrea (Jupiter)

Review Date: 07/22/11

Parameter: ☒ PAHs ☐ Pesticides ☐ PCBs
 Matrix: ☐ Sediment ☒ Water/Elutriate ☐ Tissue

Analytical Method Used: EPA 8270C

QC Measurement	Frequency	Acceptance Criteria	Criteria Met (Y/N)	Review Comments
MB	1 per 20 samples or 1 per batch up to 20 samples	No analyte should be detected > RL	Y	
MS/MSD/MST	1 set per 20 samples or per batch	50 - 150% for spike limits 50% RSD for precision	Y	
Duplicate	1 per 20 samples or 1 per batch up to 20 samples	30% RSD for precision	Y	
SRM	1 per 20 samples or 1 per batch up to 20 samples	Within limits specified by provider	Y	
ICV	Immediately following calibration curve	80 - 120% Recovery	Y	
CCV	At the beginning of every 12 hours of analysis	<15% Difference	Y	

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Dabrea (Jupiter)

Review Date: 07/22/11

Parameter: ☒ PAHs ☐ Pesticides ☐ PCBs
Matrix: ☐ Sediment ☒ Water/Elutriate ☐ Tissue
Analytical Method Used: EPA 8270C

Surrogates	Every Sample	30 – 150%	Y	
Internal Standard	Every Sample	30 – 150%	Y	
IC	Verify after each initial calibration	<20% RSD for each analyte	Y	
MDL	Verify MDL study once per year for each analyte of interest	Updated annually	Y	Maintained at the laboratory.
ICB	Immediately after initial calibration	No analyte should be detected > RL	Y	

Additional Issues Related to Data Quality	Use this space to enter any additional comments related to this section that were not addressed above
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Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Dabrea (Jupiter)

Review Date: 07/22/11

Parameter: ☐ PAHs ☒ Pesticides ☐ PCBs
 Matrix: ☐ Sediment ☒ Water/Elutriate ☐ Tissue

Analytical Method Used: EPA 8081

QC Measurement	Frequency	Acceptance Criteria	Criteria Met (Y/N)	Review Comments
MB	1 per 20 samples or 1 per batch up to 20 samples	No analyte should be detected > RL	Y	
MS/MSD/MST	1 set per 20 samples or per batch	50 - 150% for spike limits 50% RSD for precision	Y	
Duplicate	1 per 20 samples or 1 per batch up to 20 samples	30% RSD for precision	Y	
SRM	1 per 20 samples or 1 per batch up to 20 samples	Within limits specified by provider	Y	
ICV	Immediately following calibration curve	80 - 120% Recovery	Y	
CCV	At the beginning of every 12 hours of analysis	<15% Difference	Y	

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: E. Dabrea (Jupiter)

Review Date: 07/22/11

Parameter: ☐ PAHs ☒ Pesticides ☐ PCBs
Matrix: ☐ Sediment ☒ Water/Elutriate ☐ Tissue

Analytical Method Used: EPA 8081

Surrogates	Every Sample	30 – 50%	Y	
Internal Standard	Every Sample	30 – 50%	N	Utilized bracketed QC. No excursions noted.
IC	Verify after each initial calibration	<20% RSD for each analyte	Y	
MDL	Verify MDL study once per year for each analyte of interest	Updated annually	Y	Maintained at the laboratory.
ICB	Immediately after initial calibration	No analyte should be detected > RL	Y	

Additional Issues Related to Data Quality	Use this space to enter any additional comments related to this section that were not addressed above
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Laboratory Information

Use one sheet for each laboratory that will perform analytical work for this project.

Laboratory Name/Identification: Summit Environmental Technologies, Inc.

Is lab NELAC certified? Yes/No If Yes, please supply certification number E87688

Can lab meet the QC requirements below as specified in the SAP/QAPP?

Yes/No

Y	Analytical requirement
Y	Instrumentation
N	MDL's
Y	Precision and accuracy
Y	Required turnaround time

Note below any requirements the laboratory is unable to meet.

*

The MDL study for the ISO-DIL SIM method was in progress at the time of analyses

Sample Custody

Was all required information on the chain-of-custody form:

(Yes/No)

Y	Did chain of custody forms accompany samples to subcontract lab?
Y	Is the project identification on the chain of custody?
N	Are the analyses requested printed on the sample containers?
Y	Were all samples correctly identified?
Y	Were the analyses correctly identified on the chain of custody or an attached document listed on the chain of custody?
Y	Were Sample dates and times listed on the chain of custody?
Y	Were the chains of custody signed by both the relinquisher and receiver of the samples?
Y	Was the carrier identified on the chain of custody?
Y	If more than one chain of custody was needed for samples, are the chains of custody clearly numbered?
Y	Were samples packed on wet ice, with an expected receipt temperature of $4 \pm 2^{\circ}\text{C}$?
Y	Were any sample conditions or irregularities (broken bottles, improper temperature) noted on the chain of custody or accompanying paperwork?
Y	Was the chain of custody submitted as part of the report to the primary contractor?
N	Were all requested analyses performed?
Y	Was adequate sample volume provided to the contractor lab?
Y	If any anomalous behavior of the samples was found, was it noted in the lab case narrative?

Information Redacted pursuant to
 5 U.S.C. Section 552 (b)(5), Exemption
 Privileged Inter/Intra Agency Document
 Specific Privilege: Deliberative Process Privilege

Additional sample custody issues or deficiencies:

Inadequate room on the sample labels for all analyses. The analyses are provided as an attachment with the chain of custody.

Oil and Grease analyses were not performed on samples E-MH11-5 and E-MH11-6 (sediments) due to laboratory error.

Analytical Review Summary

Were all raw data included in the final report?

(Yes/No)

<input type="checkbox"/> N	Prep logs
<input type="checkbox"/> N	Analytical logs
<input type="checkbox"/> N	Data reduction logs
<input type="checkbox"/> N	Calculations
<input type="checkbox"/> Y	Data report
<input type="checkbox"/> Y	QC package

Verify that samples were prepared according to the method specified.

<input type="checkbox"/> Y	10% check
<input type="checkbox"/>	100% check

Verify that samples were analyzed according to the method specified.

<input type="checkbox"/> Y	10% check
<input type="checkbox"/>	100% check

Verify that data were properly transferred from run to data report.

<input type="checkbox"/> Y	10% check
<input type="checkbox"/>	100% check

Verify that QC was calculated and within limits and complete the QC forms provided in this package.

<input type="checkbox"/> Y	10% check
<input type="checkbox"/>	100% check

Additional data quality issues:

August 2008

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: R. Gibas (Summit)

Review Date: 06/22/11

Parameter: **Tributyltins Organotins**

Matrix: ☒ Sediment ☐ Water/Elutriate ☐ Tissue

Analytical Method Used: ISO-DIL SIM (GC/MS)

QC Measurement	Frequency	Acceptance Criteria	Criteria Met (Y/N)	Review Comments
MB	1 per 20 samples or 1 per batch up to 20 samples	No analyte should be detected > RL	Y	
MS/MSD/MST	1 set per 20 samples or per batch	40%	N	Percent recovery exceeded the acceptance criteria for monobutyltin.
Duplicate	1 per 20 samples or 1 per batch up to 20 samples	40%	Y	Used LCS/LCSD and MS/MSD (due to limited volume)
SRM	1 per 20 samples or 1 per batch up to 20 samples	Within limits specified by provider	Y	One SRM available (purchased in Spain)
ICV	Immediately following calibration curve	75-125%	Y	
CCV	At the beginning of every 12 hours of analysis	75-125%	Y	
Surrogates	Every sample	20-150%	N	N/A – ISO Dilution
IC	Verify after each initial calibration	<20% RSD	Y	

Project Identification: Miami Harbor Section 103 Sediment Testing _____

Reviewed by: R.Gibas (Summit) _____

Review Date: 06/22/11 _____

Parameter: ~~Tributyltins~~ **Organotins**

Matrix: ☒ Sediment ☐ Water/Elutriate ☐ Tissue

Analytical Method Used: ISO-DIL SIM (GC/MS) _____

MDL	Verify MDL study once per year for each analyte of interest	Updated annually	N	MDL study in progress.
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Additional Issues Related to Data Quality	<p><i>Use this space to enter any additional comments related to this section that were not addressed above</i></p> <p>The laboratory used an experimental isotopic method in an attempt to simultaneously quantitate Mono-, Di- and Tributyltin. *</p>
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Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: R.Gibas (Summit)

Review Date: 06/22/11

Parameter: TOC

Matrix: Sediment

Analytical Method Used: EPA 9060

QC Measurement	Frequency	Acceptance Criteria	Criteria Met (Y/N)	Review Comments
MB	1 per 20 samples or 1 per batch up to 20 samples	No analyte should be detected > RL	Y	
MS/MSD/MST	1 set per 20 samples or per batch	75 - 125% for spike limits 20% RSD for precision	Y	
Triplicate	1 per 20 samples or 1 per batch up to 20 samples	20% RSD for precision	N	Triplicate samples not analyzed.
SRM	1 per 20 samples or 1 per batch up to 20 samples	Within limits specified by provider	Y	
ICV	Immediately following calibration curve	80 - 120% Recovery	Y	
CCV	At the beginning of every 12 hours of analysis	90 - 110%	Y	

Project Identification: Miami Harbor Section 103 Sediment Testing
Reviewed by: R.Gibas (Summit)
Review Date: 06/22/11

Parameter: TOC
Matrix: Sediment

Analytical Method Used: EPA 9060

IC	Verify after each initial calibration	cc > 0.9950 for all calibrations	Y	
MDL	Verify MDL study once per year for each analyte of interest	Updated annually	Y	Maintained at the laboratory.

Additional Issues Related to Data Quality

Use this space to enter any additional comments related to this section that were not addressed above

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: R. Gibas (Summit)

Review Date: 06/22/11

Parameter: Tributyltins Organotins

Matrix: ☐ Sediment ☒ Water/Elutriate ☐ Tissue

Analytical Method Used: ISO-DIL SIM (GC/MS)

QC Measurement	Frequency	Acceptance Criteria	Criteria Met (Y/N)	Review Comments
MB	1 per 20 samples or 1 per batch up to 20 samples	No analyte should be detected > RL	Y	
MS/MSD/MST	1 set per 20 samples or per batch	40%	Y	
Duplicate	1 per 20 samples or 1 per batch up to 20 samples	40%	Y	Used LCS/LCSD and MS/MSD (due to limited volume)
SRM	1 per 20 samples or 1 per batch up to 20 samples	Within limits specified by provider	Y	One SRM available (purchased in Spain)
ICV	Immediately following calibration curve	75-125%	Y	
CCV	At the beginning of every 12 hours of analysis	75-125%	Y	
Surrogates	Every sample	20-150%	N	N/A – ISO Dilution
IC	Verify after each initial calibration	<20% RSD	Y	

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: R.Gibas (Summit)

Review Date: 06/22/11

Parameter: ~~Tributyltins~~ **Organotins**

Matrix: ☐ Sediment ☒ Water/Elutriate ☐ Tissue

Analytical Method Used: ISO-DIL SIM (GC/MS)

MDL	Verify MDL study once per year for each analyte of interest	Updated annually	N	MDL study in progress.
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Additional Issues Related to Data Quality

Use this space to enter any additional comments related to this section that were not addressed above
The laboratory used an experimental isotopic method in an attempt to simultaneously quantitate Mono-, Di- and Tributyltin. The detection limits were higher than the specified target limits. The laboratory attempted to rerun the analysis several times in an effort to meet all of the QC criteria and detection limits; however, they utilized the remainder of the samples that they had received on 04/05/11.

(Isotopically labeled Organotin standards are difficult to obtain)

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: R. Gibas (Summit)

Review Date: 07/27/11

Parameter: **Tributyltins**

Matrix: ☐ Sediment ☒ Water/Elutriate ☐ Tissue

Analytical Method Used: SM 6710B

QC Measurement	Frequency	Acceptance Criteria	Criteria Met (Y/N)	Review Comments
MB	1 per 20 samples or 1 per batch up to 20 samples	No analyte should be detected > RL	Y	
MS/MSD/MST	1 set per 20 samples or per batch	40%	N	Used LCS/LCSD.
Duplicate	1 per 20 samples or 1 per batch up to 20 samples	40%	Y	
SRM	1 per 20 samples or 1 per batch up to 20 samples	Within limits specified by provider	Y	
ICV	Immediately following calibration curve	75-125%	Y	
CCV	At the beginning of every 12 hours of analysis	75-125%	Y	
Surrogates	Every sample	20-150%	Y	
IC	Verify after each initial calibration	<20% RSD	Y	

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: R. Gibas (Summit)

Review Date: 07/27/11

Parameter: Tributyltins

Matrix: ☐ Sediment

☒ Water/Elutriate

☐ Tissue

Analytical Method Used: SM 6710B

MDL	Verify MDL study once per year for each analyte of interest	Updated annually	Y	Maintained at the laboratory.
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Additional Issues Related to Data Quality

Use this space to enter any additional comments related to this section that were not addressed above

Additional samples were received by Summit for tributyltin re-analyses by SM 6710B. When the additional samples were sent from Jupiter Environmental Laboratories, the Sample Custodian failed to pack the samples on ice. The samples were received at Summit at a temperature of 18.5°C. Although this temperature exceeds the acceptance criteria for tributyltin analysis, the data was not qualified based on this excursion. The laboratories stated that the samples were not within the recommended temperature range for a limited period of time (less than 24 hours).

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: R.Gibas (Summit)

Review Date: 06/22/11

Parameter: TOC

Matrix: Water/Elutriate

Analytical Method Used: EPA 415.1

QC Measurement	Frequency	Acceptance Criteria	Criteria Met (Y/N)	Review Comments
MB	1 per 20 samples or 1 per batch up to 20 samples	No analyte should be detected > RL	Y	
MS/MSD/MST	1 set per 20 samples or per batch	75 - 125% for spike limits 20% RSD for precision	Y	
Triplicate	1 per 20 samples or 1 per batch up to 20 samples	20% RSD for precision	N	Triplicate samples not analyzed.
SRM	1 per 20 samples or 1 per batch up to 20 samples	Within limits specified by provider	Y	
ICV	Immediately following calibration curve	80 - 120% Recovery	Y	
CCV	At the beginning of every 12 hours of analysis	90 - 110%	Y	

Project Identification: Miami Harbor Section 103 Sediment Testing
Reviewed by: R.Gibas (Summit)
Review Date: 06/22/11

Parameter: TOC
Matrix: Sediment

Analytical Method Used: EPA 415.1

IC	Verify after each initial calibration	cc > 0.9950 for all calibrations	Y	
MDL	Verify MDL study once per year for each analyte of interest	Updated annually	Y	Maintained at the laboratory.

Additional Issues Related to Data Quality

Use this space to enter any additional comments related to this section that were not addressed above

Laboratory Information

Use one sheet for each laboratory that will perform analytical work for this project.

Laboratory Name/Identification: New Fields, Port Gamble, WA

Can lab meet the QC requirements below as specified in the SAP/QAPP?

Yes/No

Yes	Analytical requirement
Yes	Instrumentation
NA	MDL's
NA	Precision and accuracy
Yes	Required turnaround time

Note below any requirements the laboratory is unable to meet.

~~MDLs, precision, and accuracy are not required for toxicology analysis.~~

Sample Custody

Was all required information on the chain-of-custody form:

(Yes/No)

Y	Did chain of custody forms accompany samples to subcontract lab?
Y	Is the project identification on the chain of custody?
N	Are the analyses requested printed on the sample containers?
NA	Were all samples correctly identified? ?
NA	Were the analyses correctly identified on the chain of custody or an attached document listed on the chain of custody? ?
NA	Were Sample dates and times listed on the chain of custody? ? - [REDACTED]
Y	Were the chains of custody signed by both the relinquisher and receiver of the samples? - [REDACTED]
N	Was the carrier identified on the chain of custody?
Y	If more than one chain of custody was needed for samples, are the chains of custody clearly numbered?
Y	Were samples packed on wet ice, with an expected receipt temperature of $4 \pm 2^{\circ}\text{C}$?
Y	Were any sample conditions or irregularities (broken bottles, improper temperature) noted on the chain of custody or accompanying paperwork?
Y	Was the chain of custody submitted as part of the report to the primary contractor?
Y	Were all requested analyses performed?
Y	Was adequate sample volume provided to the contractor lab?
Y	If any anomalous behavior of the samples was found, was it noted in the lab case narrative?

Information Redacted pursuant to
5 U.S.C. Section 552 (b)(5), Exemption 5,
Privileged Inter/Intra Agency Document

Specific Privilege: Deliberative Process Privilege

Additional sample custody issues or deficiencies:

COCs for Newfields tox samples were placed inside packages and did not include the carrier.

TOXICOLOGY REVIEW

TOXICOLOGY REVIEW

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Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: S. Watts (NewFields)

Review Date: 07/27/11

Part I General Data Reporting Requirements	
SUMMARY TABULAR DATA AND PROJECT NARRATIVE	
Each of the following elements should be present as described.	
YES	A summary table listing the percent survival in all control, reference, and test samples
YES	A summary table containing the LC ₅₀ /EC ₅₀ values for the suspended particulate phase (SPP) tests and t-tests from the solid phase tests
YES	A narrative which summarizes all of the deviations from the Green Book and Regional Guidance Manual protocols. Deviations of sample handling, test conditions, ammonia purging procedures, control performance, reference toxicant test performance, organism handling/acclimation, and water quality parameters should be provided in this section.
YES	A summary table which documents collection dates and holding times for the test, control, and reference sediment samples. Holding times for site water, SPP, and lab saltwater for all tests should be included in this table.
YES	The data narrative should describe the major biological project activities and results. Computerized tables of results, water quality, and other pertinent information should be placed in this portion of the biological data package.

RAW BIOLOGICAL AND WATER QUALITY DATA FROM TESTS	
YES	Survival Data
YES	Water Quality Parameters
YES	Feeding Schedule and Amount (if applicable)
YES	Organism Observations
YES	Summary of Test Conditions

TEST ORGANISM HOLDING, HANDLING AND ACCLIMATION	
YES	Organism Shipping Data Sheet Provided by Supplier
N/A	Copy of Overnight Shipping Airbill (if applicable)
YES	Internal Receiving and Distribution Data
YES	Holding/Acclimation Records (including water quality, renewals, and feeding)
YES	Mortality During Holding and Acclimation
NO	Taxonomic Identification for Each Species

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: S. Watts (NewFields)

Review Date: 07/27/11

REFERENCE TOXICANT DATA

YES	Raw Bench Sheets For Reference Toxicant Tests
YES	Reference Toxicant Stock & Test Solution Preparation Sheet
YES	LC50/EC50 Statistical Calculations
YES	Updated Reference Toxicant Control Charts with Acceptability Limits

STATISTICAL DATA FROM DREDGE MATERIAL TESTS

YES	Provide all computer generated LC ₅₀ , EC ₅₀ , and/or t-test Spreadsheets or graphical interpolations for the SPP and solid phase tests.
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INVALID

YES

If a test was repeated for any reason, the data from the original test must be included in the final report. If a serious deviation occurs which has the potential to affect test acceptability, the USACE N Y District and EPA Region 2 must be

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: S. Watts (NewFields)

Review Date: 07/27/11

Laboratory:	Solid Phase Test	Solid Phase Test	Suspended Particulate Tests			Bioaccumulation Tests	
	Amphipod	Mysid Polychaete	Minnow	Mysid	Bivalve Larvae	Sand Worm	Clam
Test Species: Identify each species used for toxicology in the cells to the right	Ampelisca abdita	Neanthes arenaceodentata	Menidia beryllina	Americamysis bahia	Strongylocentrotus purpuratus	Nereis virens	Macoma nasuta
Correct species used as stated in the SAP/QAPP? (Y/N)	Y (alternate species)	Y	Y	Y	Y	Y	Y
Test Condition Within Acceptable Limits? (Y/N)	Y	Y	Y	Y	Y	Y	Y
Control Survival (Y/N)	Y	Y	Y	Y	Y	Y	Y
Reference Toxicant Response " 2sd (Y/N)	Y	Y	Y	Y	N (NH ₃ -N) Y (NH ₄)	N	Y
Temperature (Y/N)	Y	Y	Y	Y	Y	Y	Y
Dissolved Oxygen (Y/N)	Y	Y	Y	Y	Y	Y	Y
pH (Y/N)	Y	Y	Y	Y	Y	Y	Y
Salinity (Y/N)	Y	Y	Y	Y	Y	Y	Y
Acclimation Procedures (Y/N)	N	N	N	N	N	N	N
Sediment Holding Time <6 wks (Y/N)	N (EPA/ACE approval of deviation)	Y	Y	Y	Y	Y	Y
Statistical Analyses Appropriate (Y/N)	Y	Y	Y	Y	Y	Y	Y
Ammonia Management (Y/N)	Y	N	N	N	N	N	N
Overall test data valid? (Y/N)	Y	Y	Y	Y	Y	Y	Y

Project Identification: Miami Harbor Section 103 Sediment Testing

Reviewed by: S. Watts (NewFields)

Review Date: 07/27/11

Part II Test-Specific Information (additional to items specified in Part I)	
AMPHIPOD SOLID PHASE TEST	
YES	Pretest Overlying Water Renewal Log and Total Porewater Ammonia Data
Total only	Total/Unionized Porewater Ammonia Measured in Dummy Jars During Testing
MYSID SOLID PHASE TEST	
YES	Pretest Overlying Water Renewal Log and Total Porewater Ammonia Data
Total only	Total/Unionized Overlying Unionized Ammonia Measured During Testing
SUSPENDED PARTICULATE PHASE TESTS (SPP)	
YES	SPP Preparation Log (All volumes, Mixing Times, Centrifuge Information etc.)
YES	Raw Data for Bivalve Gamete Collection and Preparation
BIOACCUMULATION TESTING	
YES	Daily Flow Calibration Log – Initial and Final Adjusted Flows
YES (date & flow)	Pre- and Post-test Depuration Logs – Time Started/Ended and Flow Rates
N/A	Receiving Logs for All Natural Saltwater (If Collected)
N/A	Preparation Logs for All Artificial Saltwater
N/A	If Control Survival <90%, Provide Detailed Narrative for the 5 Factors
YES	Raw Statistical Data Comparing Test and Reference Tissue Chemistry
SAMPLING / SAMPLE HANDLING	
YES	Chain of Custody Forms for All Test, Control, and Reference Samples
YES	Field Data Sheets and/or Sampling Logs (Including Photos If Available)
YES	Log of Test Sediment Composite Preparation
Not sieved	Sieving – Size of Mesh Used for Samples Used in Toxicity Tests/Bioaccumulation
YES	Holding Times for All Samples (Test, Reference, Control, Elutriate, Lab Saltwater) in Summary Chart Format

Information Redacted pursuant to
5 U.S.C. Section 552 (b)(5), Exemption 5,
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Specific Privilege: Deliberative Process Privilege



AEROSTAR

ENVIRONMENTAL SERVICES, INC.

September 29, 2011

Ms. Joelle Verhagen
U.S. Army Corps of Engineers
Jacksonville District
701 Prudential Drive
Jacksonville, Florida 32212

**RE: Response to Comments – Draft Sediment Sampling and Analysis Report
Miami Harbor Section 103 Sediment Sampling
Miami Harbor, Miami-Dade County, Florida
Contract No. W921EP-08-D-0004-0018**

Dear Ms. Verhagen:

Aerostar Environmental Services, Inc (AEROSTAR) hereby presents the responses to the Environmental Protection Agency's (EPA's) comments for the referenced report. The comments and their respective responses are listed sequentially below. Edits to the original text are included as ~~strike-through~~ for text removed or underline for text added.

COMMENT 1:

Executive Summary, pg xi: The draft report states that background tissue samples (Background) were generated using control sediment obtained by NewFields. The QAPP states that the background tissue samples are unexposed tissue samples. Tissue samples from the control organisms are typically not analyzed. Typically, pre-exposed tissue samples are retained for analysis to determine if there is a pre-exposure body burden. Please clarify what was done as part of this evaluation. If the background tissue samples are really just pre-exposure tissue samples, please re-label them as pre-exposure throughout the report to avoid confusion. Calling them background is inappropriate.

RESPONSE TO COMMENT 1:

The tissue samples identified as "background" were not generated using control sediment. These tissues were unexposed tissues as stated in the QAPP and were collected from each batch of test organisms (clams and worms) used in the bioaccumulation test at test initiation. The samples were frozen at that time and were sent to the laboratory with the exposed tissue samples. Tissues from control sediment exposures were frozen and retained by NewFields. The "background" tissue samples have been re-labeled as "pre-exposure" throughout the text and tables of the report.

COMMENT 2:

Section 1.2: Please clarify which lab conducted which analyses. It is unclear which laboratory conducted the sediment chemistry and which conducted the elutriate chemistry and for which analyses.

RESPONSE TO COMMENT 2:

1.2 DESCRIPTION OF THE TESTING APPROACH

Aerostar Environmental Services, Inc. (AEROSTAR) collected sediment and water samples in

accordance with the Jacksonville District U.S. Army Corps of Engineers (USACE) Contract W912EP-08-D-0004, Delivery Order 0018. AEROSTAR performed the sampling event between March 28 and April 4, 2011, which included the collection of sediment samples from six designated sample zones within the Miami Harbor, one sample from the northern reference station and one sample from the Ocean Dredged Material Disposal Site (ODMDS). AEROSTAR also collected one site water sample from within the Miami Harbor.

AEROSTAR coordinated and directed all operations and worked closely with subcontractors to execute this project. A sampling vessel with captain and crew from American Vibracore Services, Inc. (AVS) was contracted to collect vibracore and grab sediment samples. Continental Shelf Associates, Inc. was contracted to provide a 15-inch box core sampler and a technician to assist in sampling the Miami ODMDS and reference station.

The proposed sediment sampling approach included dividing the project into six sample zones within the Miami Harbor dredging program. The USACE selected five sub-sample locations within each sample zone to provide an appropriate representation of the sediment in each zone. Sediment samples were also collected from the northern reference station and the ODMDS as part of this study. The sediment samples collected from each sub-sample location were composited and homogenized on the sampling vessel by AEROSTAR personnel and placed into appropriate sample containers for delivery to Jupiter Labs. Select sediment chemical analyses were performed by Jupiter Labs. Jupiter Labs subcontracted select parameters to Summit Environmental Technologies for analyses. The parameters analyzed by Summit included organic tins, cyanide, Total Organic Carbon (TOC), and oil and grease. All remaining parameters were analyzed by Jupiter Labs.

The data provided by the above referenced laboratories were used for contaminant fate modeling, by Taylor Engineering, Inc. (Taylor Engineering), Jacksonville, Florida using the Automated Dredging and Disposal Alternatives Management System (ADDAMS) model.

A duplicate sample was collected from Zone 2 for quality control purposes. Results of the laboratory analysis of the sediment sample were compared to the Threshold Effect Levels (TELs) and Effects Range Low (ERL). Sediment was also collected for use in generating elutriate samples and biological accumulation testing.

Surface water samples were collected from Zone 5 and submitted to Jupiter Labs for chemical analyses and elutriate preparation and analyses. Surface water and elutriate sample results were compared to the Criteria Maximum Concentration (CMC) and Water Quality Criteria (WQC) for Contaminants of Concern in Marine Waters, established by the EPA. Select site water and elutriate chemical analyses were performed by Jupiter Labs. Jupiter Labs subcontracted select parameters to Summit Environmental Technologies for analyses. The parameters analyzed by Summit included organic tins, cyanide, Total Organic Carbon (TOC), and oil and grease. All remaining parameters were analyzed by Jupiter Labs.

Water column bioassay tests, whole sediment bioassay tests, and bioaccumulation assays were performed by NewFields as part of this project. All bioassay and bioaccumulation data were

reported and analyzed according to the Green Book. The tissue chemical analyses were performed by CAS.

COMMENT 3:

Section 2.1.7: Please include the material (i.g. stainless steel) the grab and box corer are constructed from.

RESPONSE TO COMMENT 2:

Sediment Sampling Equipment
Sampling Vessel

The Marine Vessel (M/V) Thunderforce, provided by AVS, was the sampling vessel utilized during this sampling event. The M/V Thunderforce is an 85-foot, steel hull research vessel, equipped with a 20,000-pound stern-mounted A-frame winch system which was used to deploy sediment sampling equipment. Thunderforce is a fully inspected and United States Coast Guard (USCG) approved vessel.

Vibracore Sampler

An AVS 80 Vibracore was utilized to collect sediment core samples. The AVS 80 consists of an 8-inch pneumatic head attached to a 4-inch outside diameter, stainless-steel, 20-foot core barrel with a replaceable 3.625-inch diameter polycarbonate core liner. The AVS 80 was attached to a steel I-beam frame, supported by a quadripod stabilizing apparatus. The AVS 80 was raised and lowered by a 5/8-inch stainless-steel cable, powered by a 15,000-pound winch. Photographic documentation of the AVS 80 is included in **Appendix D**.

Ponar Grab Sampler

A 9-inch, approximate 45-pound, stainless-steel ponar grab sampler was utilized to collect shallow depth sediments within the Miami Harbor. The ponar sampler is a clamshell-type sampler that is capable of penetrating approximately 0.5 feet into soft sediment. The 9-inch ponar sampler was raised and lowered by hand using a 3/8-inch rope and pulley system, by hand. Photographic documentation of the ponar grab sampler is included in **Appendix D**.

Box Core Grab Sampler

The ODMDS and reference station were sampled using a 15-inch, stainless-steel box core sampler provided by Continental Shelf Associates, Inc. The box core sampler is a self-closing deep water sediment sampler that weighs approximately 450 pounds. The box core sampler was raised and lowered by a 5/8-inch stainless-steel cable, powered by a 15,000 pound winch. Photographic documentation of the box core grab sampler is included in **Appendix D**.

COMMENT 4:

Section 2.3: Please identify the source of the dilution water used in the tests. Section 2.3.3 describes the source of the seawater, but does not state what the seawater was used for. Can we assume it was used for the control and dilution water?

RESPONSE TO COMMENT 4:

Source of Water

Seawater used in this study, including the flow-through studies, for control water and dilution

water, came from the northern Hood Canal at Port Gamble, Washington. This seawater source has been used successfully on similar bioassay testing programs. Extensive testing on a variety of test species has shown that there was no significant potential for toxicity or bioaccumulation from this water supply. Acceptable survival of organisms in control sediment had been achieved consistently in previous dredged material testing conducted by NewFields. Chemical analyses of this water source found in no significant contaminants of concern or bioaccumulation potential.

COMMENT 5:

Section 2.5: Please include a brief description of the statistical methods used for the tissue comparisons (recommend moving from Section 3.9.3). Also include a description of the whole sediment and elutriate toxicity test statistical analysis.

RESPONSE TO COMMENT 5:

2.5 STATISTICAL ANALYSIS PROCEDURES

Tissue data from the bioaccumulation potential testing on the clam, *Macoma nasuta*, and the polychaete worm, *Nereis virens*, were analyzed for metals, pesticides, PAHs, PCBs, organotins, and pentachlorophenol. Several of the contaminants on the analytical list required multiplication by a steady-state factor because the 28-day exposure period may not have been long enough for complete uptake into the test organisms. Steady-state factors provided in the SERIM (USEPA/USACE 2008; Appendix H) were used as appropriate on concentrations in each replicate sample.

Summed values included total PAHs, Low Molecular Weight (LMW) PAH, High Molecular Weight (HMW) PAH (as specified in Table 6-6 of the SERIM); EPA Region 4 PCBs and NOAA PCB congeners (as specified in Table 6-7 and Eq. 7-1 of the SERIM); and organotins as tin (Eq. 7-2 of the SERIM). Many of the analyses resulted in undetectable concentrations, or concentrations below the laboratory reporting limit (LRL). In these cases, a value of one-half the LRL was used when two or less of the replicates were below the LRL. When three replicates had values below the LRL, one-half the LRL or the J-flagged estimated value, whichever was higher, was used. All substitutions in the reference replicates were made with one-half the LRL. Statistical comparison of individual analytes was not performed when four or five of the five replicate samples were qualified as non-detect (U-flag) or estimated (J-flag) or when a summed concentration was composed of only less than LRL values. All comparisons were made on wet weight values.

Statistical Analysis of Tissues Chemistry Data

Statistical comparisons were performed using SAS/STAT® software (SAS 2007). Prior to statistical comparison, data were tested for normal distribution. When data violated the assumption of normal distribution, they were transformed using an arcsine square root transformation prior to statistical analysis. All data were tested for equality of variance using Levene's test.

All water quality and endpoint data were entered into Excel spreadsheets. Water quality parameters were summarized by calculating the mean, minimum, and maximum values for each test treatment. Endpoint data were calculated for each replicate and the mean value and standard deviation were determined for each test treatment. All hand-entered data were

reviewed for data entry errors, which were corrected prior to summary calculations. A minimum of 10% of all calculations and data sorting were reviewed for errors. Review counts were conducted on any apparent outliers.

Statistical Analysis of Whole Sediment and Elutriate Data

Statistical comparisons were made according to the OTM (USACE/USEPA 1991) and performed using SAS/STAT® software (SAS 2007). Prior to statistical comparison, data were tested for normal distribution. When data violated the assumption of normal distribution, they were transformed using an arcsine square root transformation prior to statistical analysis. All data were tested for equality of variance using Levene's test. For the water column tests, determinations of statistical significance were based on one-tailed Student's t-tests (SAS/STAT, Proc TTEST) with an alpha of 0.05 for comparison to control results. When the Levene's test showed variances between the two samples to be nonhomogeneous, the Satterthwaite approximation was applied and the result for uneven variance was used.

Benthic test results were compared to reference results using an Analysis of Variance (SAS, Proc GLM) with Dunnett's multiple comparison test on the mean values. The Dunnett's test was performed as a one-way test, testing for significantly lower survival than in the reference sample. Copies of the output files for the statistical analyses are included in **Appendix H** of the sediment testing report.

COMMENT 6:

Table 3-1: If the 100% elutriate is not statistically more toxic than the control or the dilution water, there is no indication of adverse effects and further evaluation is not warranted. Therefore an LC50 is not calculated. It should not be listed as >100%.

RESPONSE TO COMMENT 6:

Comment noted.

Table 3-1. Survival for *A. bahia*

Sample ID	Concentration %	Mean Survival	Standard Deviation	Statistically Less than Control?	Statistically Less than Site Water?	LC50 Value
Control	-	94.0	5.5	-	-	-
E-MH11-5W	-	90.0	10.0	No	-	-
E-MH11-1	10	94.0	5.5	-	-	-
	50	100	0.0	-	-	
	100	98.0	4.5	No	No	
E-MH11-2	10	89.0	12.4	-	-	-
	50	98.0	4.5	-	-	
	100	92.0	8.4	No	No	
E-MH11-3	10	96.0	8.9	-	-	-
	50	98.0	4.5	-	-	
	100	92.0	8.4	No	No	

Sample ID	Concentration %	Mean Survival	Standard Deviation	Statistically Less than Control?	Statistically Less than Site Water?	LC50 Value
E-MH11-4	10	98.0	4.5	-	-	-
	50	94.0	5.5	-	-	
	100	94.0	5.5	No	No	
E-MH11-5	10	98.0	4.5	-	-	-
	50	98.0	4.5	-	-	
	100	96.0	5.5	No	No	
E-MH11-6	10	98.0	4.5	-	-	-
	50	92.0	8.4	-	-	
	100	97.5	5.0	No	No	

- Not Applicable

COMMENT 7:

Table 3-5: Same comment as for Table 3-1.

RESPONSE TO COMMENT 7:

Comment Noted.

Table 3-5. Survival for *M. beryllina*

Sample ID	Concentration %	Mean Survival	Standard Deviation	Statistically Less than Control?	Statistically Less than Site Water?	LC50 Value
Control	-	96	5.5	-	-	-
E-MH11-5W	-	100	0.0	No	-	-
E-MH11-1	10	96	5.5	-	-	-
	50	96	5.5	-	-	
	100	98	4.5	No	No	
E-MH11-2	10	94	5.5	-	-	-
	50	92	8.4	-	-	
	100	98	4.5	No	No	
E-MH11-3	10	98	4.5	-	-	-
	50	94	8.9	-	-	
	100	86	16.7	No	No	
E-MH11-4	10	96	5.5	-	-	-
	50	98	4.5	-	-	
	100	92	4.5	No	No	
E-MH11-5	10	98	4.5	-	-	-
	50	94	5.5	-	-	
	100	96	5.5	No	No	
E-MH11-6	10	98	4.5	-	-	-
	50	94	5.5	-	-	
	100	96	5.5	No	No	

- Not Applicable

COMMENT 8:

Section 3.6: Please include a discussion of how the volumetric fractions were calculated and what assumptions had to be made in calculating the fractions and what were the bases for those assumptions.

RESPONSE TO COMMENT 8:

Volumetric fractions (VF) were calculated using the Draft Guidance on Calculating Volumetric Fractions for STFATE Analysis. Particle size distribution and percent moisture of sediments are given in the table below. Three grain sizes were used in the VF calculation: medium and fine sand (combined), silt, and clay. Water content was calculated using the percent moisture and percent solids, and specific gravity was used as listed below.

Sediment physical analysis for VF calculations and STFATE modeling

Sample Zone:	MH11-1	MH11-2	MH11-3	MH11-4	MH11-5	MH11-6
% Grain Size						
Medium Sand	0.11	0.10	0.02	0.02	0.01	0.02
Fine Sand	0.60	0.40	0.34	0.29	0.18	0.34
Silt	0.13	0.32	0.40	0.39	0.55	0.48
Clay	0.16	0.18	0.24	0.30	0.26	0.16
% Moisture	29.00	42.80	43.00	44.00	61.00	52.00
% Solids	71.00	57.20	57.00	56.00	39.00	48.00
w(%) (water content)	40.845	74.825	75.439	78.571	156.410	108.333
specific gravity	2.65	2.6	2.65	2.65	2.65	2.65

Disposal vessel parameters used in the volumetric fraction calculations are shown in Table 3-16 of the report and in the table below. All disposal vessel parameters were obtained from CESAJ Operations Division. As a conservative estimate, the type of dredge vessel used in this modeling simulation was the largest available hydraulic dredge. The actual type and size of dredge to be used for the Miami Harbor Phase III deepening will be determined by the dredging contractor. The actual volume of dredged sediment per load was based on the sediment grain size and previous average gross quantities transported during the Miami Harbor Phase II deepening. For this previous dredge event, a cutter suction dredge was used with a 6,000 cubic yard capacity barge to carry rock and unconsolidated materials to the ODMDS with an average load size of 2,254 cubic yards of material per scow barge. This is equivalent to 38% of solids in the barge per load and included rock plus unconsolidated materials. As an additional conservative measure, rock was not included in this sediment volume estimation so the sediment volume in the vessel was assumed to be 100% unconsolidated materials.

Ms. Joelle Verhagen
September 29, 2011
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5 U.S.C. Section 552 (b)(5), Exemption 5,
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Disposal vessel parameters for volumetric fraction calculation and STFATE modeling

Location	% Fines	Type of Dredge	Disposal Vessel Size (cy)	Actual Sediment Volume in Vessel (cy)	Percent of Sediment in Vessel	Disposal Speed	Vessel Length	Vessel Beam	Opening Length	Opening Width	Draft Light	Draft Load ed	Time to Empty Vessel
MH11-1	29%	Hopper	13500	8100	60%	2 knots	390 ft	76 ft	330 ft	24 ft	15 ft	28 ft	60 sec
MH11-2	50%	Hopper	13500	6750	50%	2 knots	390 ft	76 ft	330 ft	24 ft	15 ft	28 ft	60 sec
MH11-3	64%	Hopper	13500	6750	50%	2 knots	390 ft	76 ft	330 ft	24 ft	15 ft	28 ft	60 sec
MH11-4	69%	Hopper	13500	6750	50%	2 knots	390 ft	76 ft	330 ft	24 ft	15 ft	28 ft	60 sec
MH11-5	81%	Hopper	13500	6750	50%	2 knots	390 ft	76 ft	330 ft	24 ft	15 ft	28 ft	60 sec
MH11-6	64%	Hopper	13500	6750	50%	2 knots	390 ft	76 ft	330 ft	24 ft	15 ft	28 ft	60 sec

Comment 9:

Section 3.6: The report needs to discuss why samples 3 and 4 were combined for the STFATE analysis.

RESPONSE TO COMMENT 9:

Samples E-MH11-3 and E-MH11-4 were combined for STFATE modeling based on similar physical and chemical characteristics as well as similar bioassay results. Sample zones 3 and 4 are geographically close to one another and have similar grain size characteristics. Sample zones 3 and 4 also showed similar sediment and elutriate chemical values for a majority of COCs. For the toxicity STFATE model, larval EC50 values were 25.6% and 22.4% for zone 3 and 4 respectively. When modeled, the lower of these two values (zone 4) was used.

COMMENT 10:

Section 3.6, Table 3-4: The greatest dilution for each dredging unit needs to be calculated and presented. Results for each dredging unit and each contaminant in excess of the WQC need to be presented in tabular format.

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RESPONSE TO COMMENT 10:

Comment noted.

Table 3-14. Tier II Criterion

Arsenic		Sample ID	Cs	Dr
Cwq	69	E-MH11-1	88	0.281
Cds	1.34	E-MH11-2	110	0.606
Cwq-Cds	67.66	E-MH11-3	92	0.340
		E-MH11-4	92	0.340
		E-MH11-5	110	0.606
		E-MH11-6	120	0.754
		E-MH11-7	98	0.429
		RS-MH11	92	0.340
		11-DA	99	0.443
		E-MH11-5W	79	0.148
Selenium		Sample ID	Cs	Dr
Cwq	290	E-MH11-1	370	0.276
Cds	0.2	E-MH11-2	380	0.311
Cwq-Cds	289.8	E-MH11-3	350	0.207
		E-MH11-4	370	0.276
		E-MH11-5	370	0.276
		E-MH11-6	370	0.276
		E-MH11-7	350	0.207
		RS-MH11	370	0.276
		11-DA	400	0.380
		E-MH11-5W	360	0.242

Dr - Required Dilution (numbers in red require the highest dilution)

Cs = Concentration in sample

Cwq = WQC

Cds = Background value

All values are in ug/L

Dr - Equation used = $(Cs - Cwq)/(Cwq - Cds)$

COMMENT 11:

Section 3.6: Results need to be presented consistent with sections 7.3.3 and 7.4.2.1 of the SERIM. Tables 7-1 through 7-4 of the SERIM provide examples.

RESPONSE TO COMMENT 11:

For consistency with the SERIM, the following discussion summarizes the initial mixing computation results for the Tier II and Tier III minimum arsenic dilution criteria within and outside the ODMDS boundary. Table 11-1 provides the Tier II minimum contaminant dilution within the ODMDS at the four-hour duration, and Table 11-2 provides the Tier II minimum contaminant dilution outside the ODMDS throughout the entire four-hour simulation. Tables 11-3 and 11-4 provide the Tier III minimum dilution for toxicity within the ODMDS and outside the ODMDS, respectively.

Tables 11-1 and 11-2 show the minimum dilution calculated as the ratio of change of the maximum arsenic concentration ($C_s - C_{max}$) to the maximum arsenic concentration above background ($C_{max} - C_{ds}$) as shown in Equation 1. For the simulations to meet the water quality criterion (Table 2.3: $6.90E-2$), the minimum arsenic dilution must exceed 0.72.

As shown in Table 11-1 a minimum arsenic dilution of 1,797 occurs for sample MH11-1 and MH11-2 (well above the minimum dilution of 0.72) at 4 hours at the SMMP current profile. Table 3.2 indicates a minimum arsenic dilution of 454 for sample MH11-5 at 1.2 hours at the 50th percentile current.

Table 11-1 Tier II Minimum Arsenic Dilution within ODMDS

Table 15-1 Tier II Minimum Arsenic Dilution within ODMDS							
Time (hr)	Sample	Current Velocity Profile	Elutriate Arsenic Concentration C_s (mg/L)	Maximum Arsenic Concentration Above Background within ODMDS	Background Arsenic Concentration on C_{ds} (mg/L)	Maximum Arsenic Concentration (C_{max}) within ODMDS	Minimum Arsenic Dilution within ODMDS (D_{a-wq})
4	MH11-1	SMMP	1.20E-01	6.60E-05	1.34E-03	1.41E-03	1,797
	MH11-2			6.60E-05		1.41E-03	1,797
	MH11-3+4			6.20E-05		1.40E-03	1,913
	MH11-5			0.00E+00		1.34E-03	Undefined
	MH11-6			7.80E-06		1.35E-03	15,212
	MH11-1	50 th Percentile		6.40E-05		1.40E-03	1,853
	MH11-2			6.30E-05		1.40E-03	1,882
	MH11-3+4			6.10E-05		1.40E-03	1,944
	MH11-5			0.00E+00		1.34E-03	Undefined
	MH11-6			0.00E+00		1.34E-03	Undefined

Table 11-2 Tier II Minimum Contaminant Dilution outside ODMDS Boundary

Table 11-2: Her 11 Minimum Contaminant Dilution outside ODMDS Boundary							
Time (hr)	Sample	Current Velocity Profile	Elutriate Arsenic Concentration on C _S (mg/L)	Maximum Arsenic Concentration Above Background outside ODMDS	Background Arsenic Concentration on C _{DS} (mg/L)	Maximum Arsenic Concentration (C _{max}) outside ODMDS	Minimum Arsenic Dilution outside ODMDS (D _{a-wq})
4.0	MH11-1	SMMP	1.20E-01	2.72E-05	1.34E-03	1.37E-03	4,362
4.0	MH11-2			3.12E-05		1.37E-03	3,802
4.0	MH11-3+4			2.75E-05		1.37E-03	4,314
1.8	MH11-5			2.06E-04		1.55E-03	575
2.7	MH11-6			1.09E-04		1.45E-03	1,088
4.0	MH11-1	50 th Percentile		4.17E-05		1.38E-03	2,845
4.0	MH11-2			4.68E-05		1.39E-03	2,534
4.0	MH11-3+4			4.07E-05		1.38E-03	2,914
1.2	MH11-5			2.61E-04		1.60E-03	454
2.0	MH11-6			1.59E-04		1.50E-03	745

Tables 11-3 and 11-4 show the minimum dilution calculated as the ratio of 1 minus the maximum toxicity concentration above background ($1 - C_{tox}$), to the maximum toxicity concentration above background (C_{tox}). For the simulations to meet the water quality criterion, the minimum arsenic dilution must exceed the values give in Table 2.4 (0.224% — 1.00%). As shown in Table 11-3, a minimum toxicity dilution of 1,817 occurs within the ODMDS for sample MH11-1 at 4 hours at the SMMP current profile. Similarly, Table 11-4 indicates a minimum toxicity dilution of 580 outside the ODMDS for sample MH11-5 at 1.7 hours at the SMMP current profile.

Table 11-3 Tier III Minimum Toxicity Dilution within ODMDS Boundary

Time (hr)	Sample	Current Velocity Profile	Maximum Toxicity Concentration Above Background (C_{tox}) outside	Minimum Toxicity Dilution within ODMDS (D_{a-tox})
4.0	MH11-2	SMMP	5.50E-02	1,817
	MH11-3+4		5.20E-02	1,922
	MH11-5		0.00E+00	Undefined
	MH11-6		6.50E-03	15,384
	MH11-2	50 th Percentile	5.30E-02	1,886
	MH11-3+4		5.10E-02	1,960
	MH11-5		0.00E+00	Undefined
	MH11-6		0.00E+00	Undefined

Table 11-4 Tier III Minimum Toxicity Dilution outside ODMDS Boundary

Time (hr)	Sample	Current Velocity Profile	Maximum Toxicity Concentration Above Background (C_{tox}) outside	Minimum Dilution Toxicity outside ODMDS (D_{a-tox})
4.0	MH11-2	SMMP	2.60E-02	3,845
4.0	MH11-3+4		2.29E-02	4,366
1.7	MH11-5		1.72E-01	580
2.7	MH11-6		9.07E-02	1,102
4.0	MH11-2	50th Percentile	3.90E-02	2,563
4.0	MH11-3+4		3.39E-02	2,949
1.7	MH11-5		1.60E-01	624
2.0	MH11-6		1.33E-01	751

Figures showing the results of the Tier II and Tier III concentrations within the ODMDS (Figures A.1 – A.9 and Figures B.1 – B.9) and outside the ODMDS (Figures C.1 – C.4) throughout the entire four-hour simulation, are included in Appendix I.

COMMENT 12:

Section 3.9: See Comment 1 above regarding "background" tissues.

RESPONSE TO COMMENT 12:

The tissue samples identified as "background" were not generated using control sediment. These tissues were unexposed tissues as stated in the QAPP and were collected from each batch of test organisms (clams and worms) used in the bioaccumulation test at test initiation. The samples were frozen at that time and were sent to the laboratory with the exposed tissue samples. Tissues from control sediment exposures were frozen and retained by NewFields. The "background" tissue samples have been re-labeled as "pre-exposure" throughout the text and tables of the report.

COMMENT 13:

Section 3.9 – Tables: The concentrations as a percent of reference should be provided (SERIM Appendix D). It is noted that this information is calculated and provided in the 103 Evaluation which is acceptable.

RESPONSE TO COMMENT 13:

Comment noted.

Table 3-49. Mean *M. nasuta* Tissue Results Statistically Greater than Reference

Analyte	FDA Action Levels	EET	E. FL Background	RS-MH11	E-MH11-3/4	E-MH11-5	E-MH11-6
Lead	1.7	0.1	0.1-0.21	0.18	0.21	0.27	0.33
Flouranthene	NA	8.8	<20	2.8	-	5.2	7.0
Benzo(b) flouranthene	NA	NA	<20	5.8	-		11.5
HMW PAH	NA	NA	60	23.5	-	27.7	32.2
Total PAHs	NA	40,000	170	74.8	-	81.6	89.2
EPA Region 4 PCBs	2,000	390	0.25-0.33	7.0	-	7.9	11.6
Tributyltin	NA	114.4	<1.0	1.84	3.32	5.74	3.50

Table 3-50. Mean *N. virens* Tissue Results Statistically Greater than Reference

Analyte	FDA Action Levels	EET	E. FL Background	RS-MH11	E-MH11-6
EPA Region 4 PCBs	2,000	390	0.25-0.33	7.0	11.6

Number of times above reference for sample tissues for *M.nasuta* and *N.virens*

<i>Macoma nasuta</i>				
Sample: Analyte:	Reference	E-MH11-3/4	E-MH11-5	E-MH11-6
Lead	1	1.2	1.5	1.8
Fluoranthene	1	--	1.9	2.5
Benzo(b)fluoranthene	1	--	--	2.0
HMW PAHs	1	--	1.2	1.4
Total PAHs	1	--	1.1	1.2
EPA PCBs	1	--	1.1	1.7
Tri-n-butyltin cation	1	1.8	3.1	1.9
<i>Nerles virens</i>				
EPA PCBs	1	--	--	1.3

COMMENT 14:

Table 3-38: Concentrations greater than the reference need to be indentified (e.g. in bold).

RESPONSE TO COMMENT 14:

Comment Noted.

Table 3-38. Summary of Mean Values of PCBs *Macoma nasuta*

Analyte	FDA Action Level ¹	Ecological Effects Threshold ²	Eastern Florida Background ³	Background n=3		RS-MH11 n=5		E-MH11-1 n=5		E-MH11-2 n=5		E-MH11-3/4 n=5		E-MH11-5 n=5		E-MH11-6 n=5	
				Mean	NQ ⁴	Mean	NQ ⁴	Mean	NQ ⁴	Mean	NQ ⁴	Mean	NQ ⁴	Mean	NQ ⁴	Mean	NQ ⁴
EPA Region 4 PCBs	2000	390	0.25-0.33	7.0	-	7.0	-	7.0	-	7.0	-	7.1	-	7.9	-	11.6	-
NOAA PCBs	-	-	-	9.5	-	9.5	-	9.5	-	9.5	-	9.6	-	11.1	-	17.6	-

¹ FDA Action Levels from SERIM Appendix II, Table 1 (USEPA/USACE 2008)

² Ecological Non-Specific Effects Threshold Concentrations from SERIM Appendix II, Table 1 (USEPA/USACE 2008)

³ Regional background concentrations from SERIM Appendix II, Table 1 (USEPA/USACE 2008)

⁴ NQ = number of qualified replicates (U or J); statistical analyses not performed on samples with 4 or 5 qualified replicates

Results in µg/kg wet weight

Results in **BOLD** are greater than reference

- Not Applicable

COMMENT 15:

Section 4.2: Considering the amount of settling observed in the physical analysis, do the chemical biological laboratories also homogenize their sediment samples before analysis? Please provide copies of their SOPs.

RESPONSE TO COMMENT 15:

All samples were homogenized thoroughly prior to analysis. The samples were initially homogenized at Jupiter Labs prior to sub-sampling for individual analysis. While no written SOPs are employed by Jupiter Labs for large volume homogenization, a stainless steel spoon was utilized to thoroughly homogenize each container of sediment prior to any analysis or sample separation. The stainless steel spoon was decontaminated after completion of each sample preparation in accordance with the procedures established in the SAP/QAPP, in order to avoid any possible cross contamination of the samples.

Jupiter Labs divided the homogenized samples into aliquots to be delivered to Summit and Terracon. Additionally, the subcontracted samples were also homogenized at the receiving laboratories prior to analysis. Summit Environmental Technologies remixed the samples prior to analysis for applicable methodologies in order to ensure that representative samples were utilized for analysis. EPA Method specific protocols were followed precisely in regard to sample treatment.

COMMENT 16:

Section 4.2: We believe that homogenization should be part of any SOP. Please provide a copy of the physical laboratory's SOP.

RESPONSE TO COMMENT 16:

A copy of Terracon's sample handling SOPs are included in Appendix F.

COMMENT 17:

Please include copies of the initial and secondary analysis in the appendix.

RESPONSE TO COMMENT 17:

Comment noted, initial and secondary results have been included in Appendix F.

COMMENT 18:

Section 4.4.2-Organic Tin Compounds: For the analysis conducted in July, was a fresh elutriate prepared? If a fresh elutriate was not prepared, was the elutriate analysis conducted within appropriate hold times? The samples were received at 18.5 degrees. How were the samples being held and preserved prior to shipment. Is there any documentation regarding this preservation? Please provide copies of the labs SOPs for preparing and storing elutriates.

RESPONSE TO COMMENT 18:

Organic Tin Compounds

Additional Comments:

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Specific Privilege:

Deliberative Process Privilege

The elutriate extractions were completed by Jupiter Labs by April 8, and all sediment, water and elutriate extraction samples were forwarded to Summit for chemical analysis. Organotins samples were submitted to Summit for analysis using an novel isotopic methodology for mono, di, and tributyltin in early April. Summit began analysis of samples for mono, di and tributyltin within the forty day window as listed on the QAPP, though encountered difficulties within the method that required multiple reruns and extractions during the course of analysis. The difficulties with the method pushed the date of final analysis outside of the work plan prescribed forty day window for analysis. The final runs for the organotins were completed on June 2 and 3, 2011. The technical director for Summit Environmental approved the QA/QC batch and sample data for this final run, and the data was reported as submitted on Summit's final data reports.

Summit used the isotopic method in an attempt to simultaneously quantitate mono-, di- and tributyltin. The detection limits were higher than the specified target limits. The laboratory attempted to re-run the analysis several times in an effort to meet all the QC criteria and detection limits; however, they did not have sufficient sample volume remaining for re-analysis.

Based on the difficulties encountered using the new isotopic method, Summit analyzed tributyltin in an individual run, using the SM 6710B Method. Elutriate samples, originally prepared between April 6 and 8, 2011, were shipped from Jupiter Labs to Summit for analysis of tributyltin. The elutriate samples were prepared within the appropriate hold time for the sample; however, the elutriate samples were analyzed approximately 55 days out of the QAPP recommended 40-day hold times for organic tins. The SM 6710B Method, utilized during the later analyses of tributyltin, had a recommended holding time of 13 weeks from extraction to analysis.

The samples were received at Summit at 18.5°C. Although this temperature exceeds the acceptance criteria for the tributyltin analysis, the data was not qualified based on this excursion. Prior to shipment of the elutriate extract, the laboratory maintained the extract in refrigerators which maintained sample temperatures between 0 and 6 degrees Celcius. The laboratory stated that the samples exceeded the acceptance criteria temperature for less than 24 hours and this would not have affected the quality of the sample. Elutriate samples were prepared per procedures listed in 10.1.2 of the Green Book. A sample refrigerator temperature log from Jupiter Labs is included in Appendix C.

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Specific Privilege: *Deliberative Process Privilege*

COMMENT 19:

The report is missing the Chemical Data Quality Assessment Report (see QAPP section 6.2.6)

RESPONSE TO COMMENT 19:

The Chemical Data Quality Assessment Reports are included in Appendix K of the report. Field Daily Quality Control Reports and field logs are included in Appendix E of the report.

COMMENT 20:

The report is missing the Quality Control Summary Tables (see SERIM Section 8.0 and Appendix O).

RESPONSE TO COMMENT 20:

The data required in Section 8.0 and Appendix O of the SERIM is included in Appendix K of the report.

COMMENT 21:

Appendix B- Table 1: There are a number of asterisks in this table that are not defined. Please qualify the data with an asterisk.

RESPONSE TO COMMENT 21:

Comment noted, changes have been made to Table 1.

COMMENT 22:

Appendix B – Table 6: The USCS classification for sample 2 does not match the data sheet in Appendix F.

RESPONSE TO COMMENT 22:

Comment noted, change made to Table 6.

COMMENT 23:

Appendix B – Table 7B: Note that there are TEL and ERL values for total PCBs. This table lists them as NA.

RESPONSE TO COMMENT 23:

Comment noted, changes made to Table 7B.

COMMENT 24:

Appendix B – Table 7D: Note that there are TEL and ERL for total PAHs. This table lists them as NA.

RESPONSE TO COMMENT 24:

Comment noted, changes made to Table 7D.

COMMENT 25:

Appendix B – Table 8B: What is meant by "Dilution Factor?" Is this the required dilution or did the sample require dilution during the analysis? Also recommend including in this table the required dilution needed to meet the WQC for each result.

RESPONSE TO COMMENT 25:

The term Dilution Factor was intended to represent the required dilution to meet WQC. The term Dilution Factor has been removed from the table.

COMMENT 26:

Appendix B – Table 15B: The PCBs for each replicate should be provided. This should have been calculated in order to perform the statistical analysis.

RESPONSE TO COMMENT 26:

Comment noted, changes have been made to Table 15B.

COMMENT 27:

Appendix B – Table 15D: The total PAHs (low and high molecular weight) for each replicate should be provided. This should have been calculated in order to perform the statistical analysis.

RESPONSE TO COMMENT 27:

Comment noted, changes have been made to Table 15D.

COMMENT 28:

Appendix B – Table 15E: The total organotins for each replicate should be provided. This should have been calculated in order to perform the statistical analysis.

RESPONSE TO COMMENT 28:

Comment noted, changes have been made to Table 15E.

COMMENT 29:

Appendix B – Table 17B: Title incorrectly includes MACOMA.

RESPONSE TO COMMENT 29:

Comment noted, change made to Table 17B.

COMMENT 30:

Appendix B – Table 17B: The PCBs for each replicate should be provided. This should have been calculated in order to perform the statistical analysis.

RESPONSE TO COMMENT 30:

Comment noted, changes made to Table 17B.

COMMENT 31:

Appendix B – Table 17D: The total PAH (low and high molecular weight) for each replicate should be provided. This should have been calculated in order to perform the statistical analysis.

RESPONSE TO COMMENT 31:

Comment noted, changes made to Table 17D.

COMMENT 32:

Appendix B – Table 17E: The total organotins for each replicate should be provided. This should have been calculated in order to perform the statistical analysis.

RESPONSE TO COMMENT 32:

Comment noted, changes made to Table 17E.

COMMENT 33:

Where are the sample photos? The QAPP states that photos of drilled cores and grabs shall be provided electronically on the Report CD (QAPP Section 6.2.3). Appendix D only has photographs of some of the stations and the sampling equipment.

RESPONSE TO COMMENT 33:

Comment noted. Additional photographs of representative samples, drilled cores and grabs have been included with this response as Appendix D.

COMMENT 34:

Appendix E – Offshore Sampling: The field notes that one sample was mostly water and that the composite has very high moisture content. When grab sampling, was the water decanted off the surface or retained with the sample? Is a photograph of the DA composite available?

RESPONSE TO COMMENT 34:

Excess seawater was decanted from the grab sampler prior to placing the sample into the homogenization bin. Once the required volume of sample was obtained in the homogenization bin, the sample was allowed to settle and when possible, any additional standing water was decanted from the composite bin. The sediment from the DA was very fine grained and remained suspended in the high moisture sample. Very little standing water was able to be removed from the DA composite sample. Photographs of the DA sample are included in Appendix D.

COMMENT 35:

Appendix F: The sheets should identify which results are original and which are the re-analysis. Some sheets are dated 6/24, some on 6/7. Both original results and re-analysis results should be included in the appendix. We are requesting a copy of the labs SOP due to inconsistency in the results.

RESPONSE TO COMMENT 35:

Comment noted. The original and the re-analysis sample results have been included with this response as Appendix F. Original grain size analyses were conducted on 4/13 through 4/15. Samples E-MH11-2 and E-MH11-7 were retested on 6/7 and samples E-MH11-1, E-MH11-3, E-MH11-4, E-MH11-5, E-MH11-6, RSMH1, and MH11-DA were retested on 6/24. A copy of the labs SOPs are included in Appendix F.

COMMENT 36:

QA/QC Review: A full QA/QC review has not been conducted. We will conduct a more thorough review once the Chemical Data Quality Assessment Report (see QAPP section 6.2.6) and the

Quality Control Summary Tables have been provided. The following issues were identified during our preliminary review:

- a. Chain of Custody for E-MH11-3 does not match field notes for this sample.
- b. Chain of Custody sheets indicate receipt of samples by Intralabs. Intralabs is not identified in the QAPP or Sediment Testing Report as having a role in the project. It is unclear why they are receiving samples.
- c. There are no Chain of Custody sheets for Jupiter Environmental Labs receiving samples.
- d. Chain of Custody forms show tissue samples going to Intralabs. The testing report indicates Columbia Analytical Services analyzed the tissue samples. There are no proper chain of custody forms for samples transferred to Columbia Analytical Services.
- e. There are no chain of custody forms for Terracon (physical analysis)
- f. Cooler receipt form indicates no sample labels on sediment sample received on 4/4/11. Form also indicates that there is not custody seal in place (see QAPP Section 12.0).
- g. Cooler receipt form indicates no custody seal in place for samples received on 7/9/11.
- h. Summit organic tin analysis appears to be conducted out of hold times identified in the QAPP. This needs to be addressed. The lab sheets also do not appear to include extraction dates.
- i. The Summit organic tin QC report states that recovery limits have not been established due to insufficient recovery data. Please elaborate on how this effects the quality of the data.

RESPONSE TO COMMENT 36:

The Chemical Data Quality Assessment Reports and Quality Control Summary information are included in Appendix K of the report.

- a. The samples submitted to Jupiter on March 30, 2011 did include the sediment sample E-MH11-3. The samples submitted on March 30, 2011 consisted of the sediment sample E-MH11-3, the water sample E-MH11-5W and the background water. A summary of the changes to the COC documents is included in Appendix C.
- b. Intralabs is the broker for Jupiter labs. All chemical samples were delivered to and received by Jupiter and its employees. Intralabs is the provider of the sample kits, coolers and chain of custody forms. The recipients of the samples should have identified their affiliation on the chain of custody as Jupiter Labs.
- c. Jupiter Labs was the recipient of the samples, not Intralabs. Please see above comment response. Chain of Custody sheets dated 3/31/2011, 4/1/2011, and 4/5/2011 were relinquished by AEROSTAR and received by Jupiter Labs.
- d. The tissue samples were initially shipped to and received by Jupiter Labs from NewFields. The decision was later made to have Columbia Analytical Services (CAS) analyze the tissue samples. Jupiter shipped the tissue samples to CAS under the

same, original chain of custody. The relinquishing and receiving signatures are located on the far right column of the chain of custodies.

- e. Comment noted. Terracon chain of custodies are included in Appendix C. It should be noted that the samples were shipped through Access Analytical. Access Analytical is a division of Intralabs and performed no analyses, just delivery of the samples to Terracon.
- f. All samples received by Summit on both 4/4 and 7/9 had container labels present on all containers listed on the COC. The cooler receipt form was in error in noting that sample labels were not present on the samples. The form should have indicated that no custody seals were present on either the coolers or containers associated with the project. This finding is accurate, as Jupiter Environmental did not attach custody seals to the samples or coolers during shipment of the subcontracted samples. The samples that were shipped to Summit were subsamples acquired from the original large volume sample containers. The original custody seals placed on the large volume containers by AEROSTAR were removed by Jupiter Environmental Laboratory personnel in order to separate sufficient sample for subcontract analysis by Summit Environmental and Terracon. No new custody seals were generated by Jupiter Environmental for shipment to either lab. It is important to note that all subcontracted samples arrived at the appropriate laboratories in secure, taped coolers with sealed lids, labels and packaging intact. No lapse in sample custody occurred during the project, and no compromise in sample integrity was noted by any performing laboratory.
- g. See previous response to Comment 36f.
- h. Section 4.4.2 of the Sediment testing report has been edited as follows:
Organic Tin Compounds
Additional Comments: [REDACTED]
The elutriate (extractions) were completed by Jupiter Labs by April 8, and all sediment, water and elutriate extraction samples were forwarded to Summit for chemical analysis. Organotins samples were submitted to Summit for analysis using an novel isotopic methodology for mono, di, and tributyltin in early April. Summit began analysis of samples for mono, di and tributyltin within the forty day window as listed on the QAPP, though encountered difficulties within the method that required multiple reruns and extractions during the course of analysis. The difficulties with the method pushed the date of final analysis outside of the work plan prescribed forty day window for analysis. The final runs for the organotins were completed on June 2 and 3, 2011. The technical director for Summit Environmental approved the QA/QC batch and sample data for this final run, and the data was reported as submitted on Summit's final data reports. Summit used the isotopic method in an attempt to simultaneously quantitate mono-, di- and tributyltin. The detection limits were higher than the specified target limits. The laboratory attempted to re-run the analysis several times in an effort to meet all the QC criteria and detection limits; however, they did not have sufficient sample

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volume remaining for re-analysis.

Based on the difficulties encountered using the new isotopic method, Summit analyzed tributyltin in an individual run, using the SM 6710B Method. Elutriate samples, originally prepared between April 6 and 8, 2011, were shipped from Jupiter Labs to Summit for analysis of tributyltin. The elutriate samples were prepared within the appropriate hold time for the sample; however, the elutriate samples were analyzed approximately 55 days out of the QAPP recommended 40-day hold times for organic tins. The SM 6710B Method, utilized during the later analyses of tributyltin, had a recommended holding time of 13 weeks from extraction to analysis. The samples were received at Summit at 18.5°C. Although this temperature exceeds the acceptance criteria for the tributyltin analysis, the data was not qualified based on this excursion. Prior to shipment of the elutriate extract, the laboratory maintained the extract in refrigerators which maintained sample temperatures between 0 and 6 degrees Celcius. The laboratory stated that the samples exceeded the acceptance criteria temperature for less than 24 hours and this would not have affected the quality of the sample. Elutriate samples were prepared per procedures listed in 10.1.2 of the Green Book. A sample cooler temperature log from Jupiter Labs is included in Appendix C.

- i. Due to the utilization of a new Spanish method for the organotins analysis, sufficient data points had not been established to calculate control ranges. However, each batch of organotin samples was accompanied by a full set of QC samples. Thus, each analytical sequence stands on its own having matrix spikes, laboratory control samples and method blanks. Project specific accuracy and precision information is presented, but a perspective of how well the data fits into an historical database (control ranges) is not available. The quality of the data presented for this project is not affected by the lack of establishment of recovery limits.

EPA Region 4/USACE SAD Sediment Testing Reports Reviewer's Checklist

Sampling Information

3. Discussion of Rational for Sample Location and Compositing Scheme.

A substantial number of core boring data have been collected within and near the project site to obtain the geotechnical characteristics of the site. The Technical POC and Jacksonville District geotechnical staff evaluated the quantity and physical nature of the substrate and determined the most suitable locations for the proposed subsample locations. Subsample locations were provided by the Corps to AEROSTAR based on the previous core boring locations and shoaling patterns. When appropriate, subsample stations were picked at random. No areas were determined to be more likely to be contaminated than others or to have largely varying currents. AEROSTAR and the Corps worked together in the field to determine the most appropriate sampling and analytical methodologies to be utilized in the New Work area. AEROSTAR applied the compositing scheme outlined in the SAP/QAPP.

5c. Elutriate Dilution Water Sample Location or Source of Dilution Water.

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Deliberate Process Privilege

Ms. Joelle Verhagen
September 29, 2011
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This topic is addressed in the above Comment Response 4.

Discussion and Analysis

1. General discussion of results in comparison to historic results in area.

This topic is addressed in the USACE Sediment Testing Report Evaluation.

If you have any questions, please contact the undersigned at (904) 565-2820.

Sincerely,

AEROSTAR ENVIRONMENTAL SERVICES, INC.

A handwritten signature in dark ink, appearing to read "Geoffrey Reichold".

Geoffrey Reichold, P.G.
Senior Project Manager

